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The Improvement Of The Legal Framework Concerning Hydroelectric Exploitation In Madagascar By The Vsm Tool

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ABSTRACT

The Act N° 98-032 of January 20th[10], which brings reform on electric sector constitutes the foundation of the legal framework of hydroelectric exploitation in Madagascar. The research's purposes are to study the procedures which mostly concern the granting of authorization or concession and to check whether the current legal framework is flawed or requires a reform. VSM tool (Value Stream Mapping) is used in this research, to develop the procedures. Currently, a new reform of this text is useful for specifying the roles of each stakeholder in the process of conceding permission and authorization, to increase the minimum threshold of a system's application, to remove the barriers on fees, to transfer the Ministry's authorities to the benefit of decentralized community concerning authorization and to allow the participation of non-commercial entities in hydroelectric exploitation. The procedures do not need to be changed, but the application fields and methods need to, in order to incite operators' commitment.

Keywords: *Act, Authorization, Hydroelectric Power Station, Concession*.

1. Introduction

The order N°74-002 of February4th[14], which positioned the water and electricity policy, had governed the electric sector in Madagascar for a longtime until the commitment of a liberal political system that leaded to the adoption of the Act N°98-032 of January20th[10], bringing a reform on the electric sector. A major reform concerning regulation and institutional aspects was inserted. Nevertheless, according to the Ministry of Energy, the result of this liberalization remains low in terms of achievement because only 12% of households have access to electricity. The number of private operators collaborating with JIRAMA Network is 6 (JIRAMA is owned by the State) and 27 independent operators deal with rural electrification.

In comparison, there were about 1700 smalls hydropower in France, in 2003[19] whereas in Madagascar there were only about 30 in the year 2006 [17] and about a hundred in 2008[16].

The aim of this research is to know whether the current legal system weakens the normal development of the hydroelectric sector in Madagascar.

The VSM tool (Value Stream Mapping) of the LEAN methodology has allowed us to develop the procedures in detail and to suggest the commitment on a new reform. This reform focuses on: the elimination of financial barriers, and on the precision of the stakeholders' roles in the sector. It also focuses on the improvement of the threshold of the procedure's application, and on the total transfer of the skill to benefit the decentralized local community, concerning the granting of authorization.

2. Literature Review

The electricity sector in Madagascar is in difficulty. The electrification development is

limited. According to Ministère de l'énergie[18], "The report tells that there are few new operators. Only 4 private companies have authorization and concession contracts. They may act as self-producer for the exploitation of large power stations. Afterwards, those companies sell the electricity to JIRAMA". "The presence of private sector in this field is noticed but the competition is hardly seen by users. Competition lies in the participation of more than one operator during the invitation to tender (...).Regarding the rural electrification, the participation of private operators is also a reality. In each locality electrified in rural areas, only one operator is involved in the production and the distribution of electricity to users[18].The problem tree shown in Figure 1 below presents the main problems in the small hydropower sector in Madagascar.

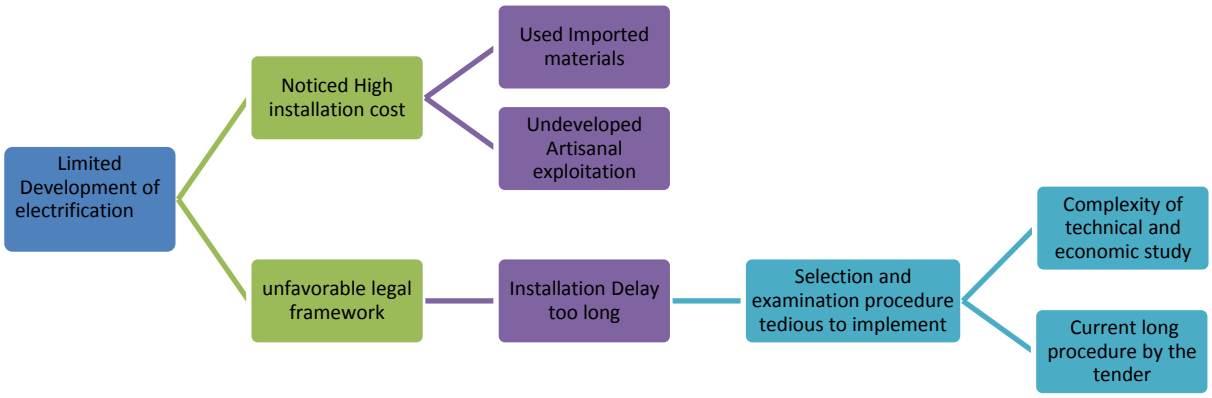

Figure 1: Tree problems

This situation is caused by the high cost of the installation as well as the legal framework which is not favorable. Indeed, "the cost of kW hydraulic moves in a range from 1200 to 3000€ per kW" [19]. For operation at low head "the cost of installed kW VLH (Very Low Head) varies from 2 941, 18 to 34 782, 61 Euro [20], whereas, the Aqualienne Eco-turbine costs between 1600 to 3000 Euro per kW, installation excluded"[19].Poor countries cannot afford such imported materials.

"In Madagascar, the Antananarivo Polytechnic University and some small companies have already made cross flow turbines (cross flow, Banki, Michel). There is a group which has built an "exotic" type turbine which is low head. This group has also done various attempts to tinker turbines with scrap-iron. Even though the power of those turbines is still weak, these experiments remain promising, because the foreign products in competition are quite expensive. This way is possible without (expensive) licenses, but in the first decade it will take about 10 to 20% less energetic output"[16].Yet, nowadays the traditional exploitation is not developed and remains at the study phase.

Ten years after the reform, the operators claim to "create favorable framework conditions on the level of legislation and administrative details"[16]. "The safety of long-term investment is too low - it is critical and requires political and economic stability, with more favorable rules of water rights, current sales etc. "[16].

The selection and directive procedures of the projects are tedious to implement due to the complexity of the technical and economic studies, causing a delay or a hesitation in decision making from potential investors, State policy makers and donors. This situation can be checked, for example the case of hydroelectric projects. 41 operators responded to the tender but only one of them arrived at the final stage of the invitation in the early 2000s, which was eventually commissioned in late 2008 after several years of treatment, according to the Ministry of Energy.

3. Methodology

This research concerns only the procedures similar to a mechanism. The principle N°2 of LEAN was applied to see through the analysis of the granting system of the hydroelectric exploitation contract. This principle consists in drawing the current and future value of stream mapping to understand better the process.

The VSM or Value Stream Mapping is a mapping tool which consists in showing the flow of the products and any other information throughout the process. The use of this tool will display all the procedures for granting concession or authorization. The VSM is a tool for drawing the current state of these procedures and for conceiving the future state in order to build an action plan to achieve the goal.

Based on the current legislation, including the Water Code, the reform of electrification and its implementing regulations, procedures for authorization or concession granted are mapped.

Thus, the discrepancies among the texts are identified. And the process improvements are also proposed.

All the actions identified in the already mentioned decrees and hydropower laws were identified. A classification of operations belonging to a procedure was performed to separate one procedure from another. Indeed, there were four procedures provided by the Malagasy texts in the field of hydroelectric power: the self-production procedure, the spontaneous application authorization procedure, the authorization procedure for tendering, and concession procedure. These procedures were then arranged in the logical order of operations. Mapping the stream has been made in an automatic way through the Microsoft Excel application. The difficulty lay in the difference between the practices in force. Discrepancies between the provisions of laws with decrees were also noted.

The creation of a new supposed ideal mapping was done. The fastest step was the treatment record. But the problem was the need of numerous operations procedures for the granting of an authorization or concession. Thus, change procedures were reduced. The study mainly focused on the admission criteria of a dossier to follow a procedure or another. The development of the action plan to bring the current mapping to the ideal mapping helped to lead to the results presented in the next section.

Using other LEAN tools seems especially advantageous to eliminate waste of time. But since the system is still non-functional; an intervention will take time and will require institutional resources.

4. Results

4.1 Legal components of a river

A project on hydraulic exploitation involves several State agencies. The Basin Agency is the first responsible in local level that the project promoters should consult. To receive

authorization or concession, the agency proposes the future operators' files to the "ANDEA" (Autorité Nationale De l'Eau et de l'Assainissement. This means: National Authority for Water and Sanitation).

The latter is the main actor on hydroelectric exploitation and links up the operator and the State.

Concerning the authorization regime, the "ANDEA" sends out a permission order. Concerning the concession regime, it deals with the contract between itself and the company under the provisions of the decree on hydroelectric exploitation. But, according to the law on electricity, the Minister of Energy has the authority to achieve this administrative proceeding. The government only approves the concession contract by decree. The Prefect also issues an operating license under the terms of Article 36 of the Water Code.

The Agency for Development of Rural Electrification (ADER) was established in 2004 to regularize the electricity distribution chain in rural areas: production, transport and distribution. It also ensures the development of rural electrification by subsidizing the studies and projects in this sector.

The National Electricity Fund (NEF) is an entity that manages the funding of rural electrification development programs. This funding is levied for investment subsidies to operators holding authorization or under the Concession conditions and procedures laid down by regulation.

The regulating agencies of electricity sector introduced by Article 40 of the law for the reform of the electricity sector, and developed by Decree N^{o} 2005-062 of January25th[5], constitute the Council of Electricity and the Executive Secretariat. It is a public administrative institution that ensures the determination and the publication of the provisions' rate, the monitoring of the compliance with the service quality standards, the control and the guarantee of the compliance with the principle of competition.

All indebted operators must report their annual turnover to the ERO (Electricity Regulation Office), once their accounts have been audited, at the latest the first of May of the following year.

The rivers in Madagascar are of public domain. In addition, water legally belongs exclusively to the State, even if the ownership is actually manifested as common heritage regime according to the article 1 of the Water Code. All the components of the rivers belong to the State: energetic, land and water components. The exercise of this authority is materialized by the regulation of the use and deduction of water. The diversion of the river on another channel requires permission from the State. Though the population can use water, it has no right to sell or to use the water without an authorization. Then, the rights to water use are characterized as limited rights of use. Thus a possible operation could be stopped unilaterally by the State. In fact, it is not really a right but rather an advantage.

The current water use concerns in general the farming and the energy exploitation.

In the Malagasy text, all rivers belong to the State. Water components and fish fauna are not really a common heritage. The energy belongs to the State, as well. Thus, there is no private owner of those things.

4.2 The concession regime

Concerning hydroelectric water use, the article 1 of the Decree N°2003-942 of September 9th[4], specifies that "the hydroelectric

companies of which maximum power exceeds 500kW are placed under the concession". Yet, for the same type of operation, the articles 8 and 12 of the Act 98-032 of January20th[10], which reform the electric sector, fix a power level higher than 150kW for a single production and 500kW for a distribution agency.

Concerning Environment Charter, according to the article 5 of the Act N° 90-003 of December 21st[6], the study on environmental impact is required to the project holder.

The specifications which include the main objective of the company, the obligations of the concessionaire and the various clauses are attached to the concession contract.

The future concessionaire could make agreements with various organizations for the use of water according to the Article 9 of the same decree. As the case of the current JIRAFI (JIro sy RAnon'ny FIsakana), the main problem is that the farmers use the rivers in large quantities, thus the rivers' flow decreases. Before installing a hydroelectric power station, an agreement with the other users is a very important and obligatory step for the project holder.

During the exploitation or the execution of the operations defined in the specifications, the concessionaire has the right to occupy any land within the perimeter of the concession. And that situation also applies to the needed land for the establishment of restraint structures, to the water intake, to the supply channels, and to the leak channels (underground or open pit).It is the same case for lands, which are submerged by the raising of water.

If the company provides a public service, it will receive the rights designed for public works (art.8D2003-942)[4]. Thus, it acquires the necessary land on behalf of the State and has certain advantages of public power, such as the possibility to expropriate, to impose pipeline easements and so on. But the company has some obligations as counterparties, for instance: return of property to the State at the end of concession, provision of water reserves and energy, financial fee paid to the State (art.10 D2003-942)[4] and fish damage compensation.

The administration could replace the concessionaire in case of: buying back, decay, and expiry of concession (Art. 10 D2003-942)[4]. Then, according to the same decree, the concession duration cannot exceed 75 years. But the administration could still impose decay during the exploitation. The decay may be caused by the failure to comply with obligations which were imposed to the dealer (Art. 10 D 2003-942)[4]. And still according to this same article, when the exploitation is over, the land, the structures, the buildings must return to the administration.

Figure 2 below shows the procedure for granting a concession contract.

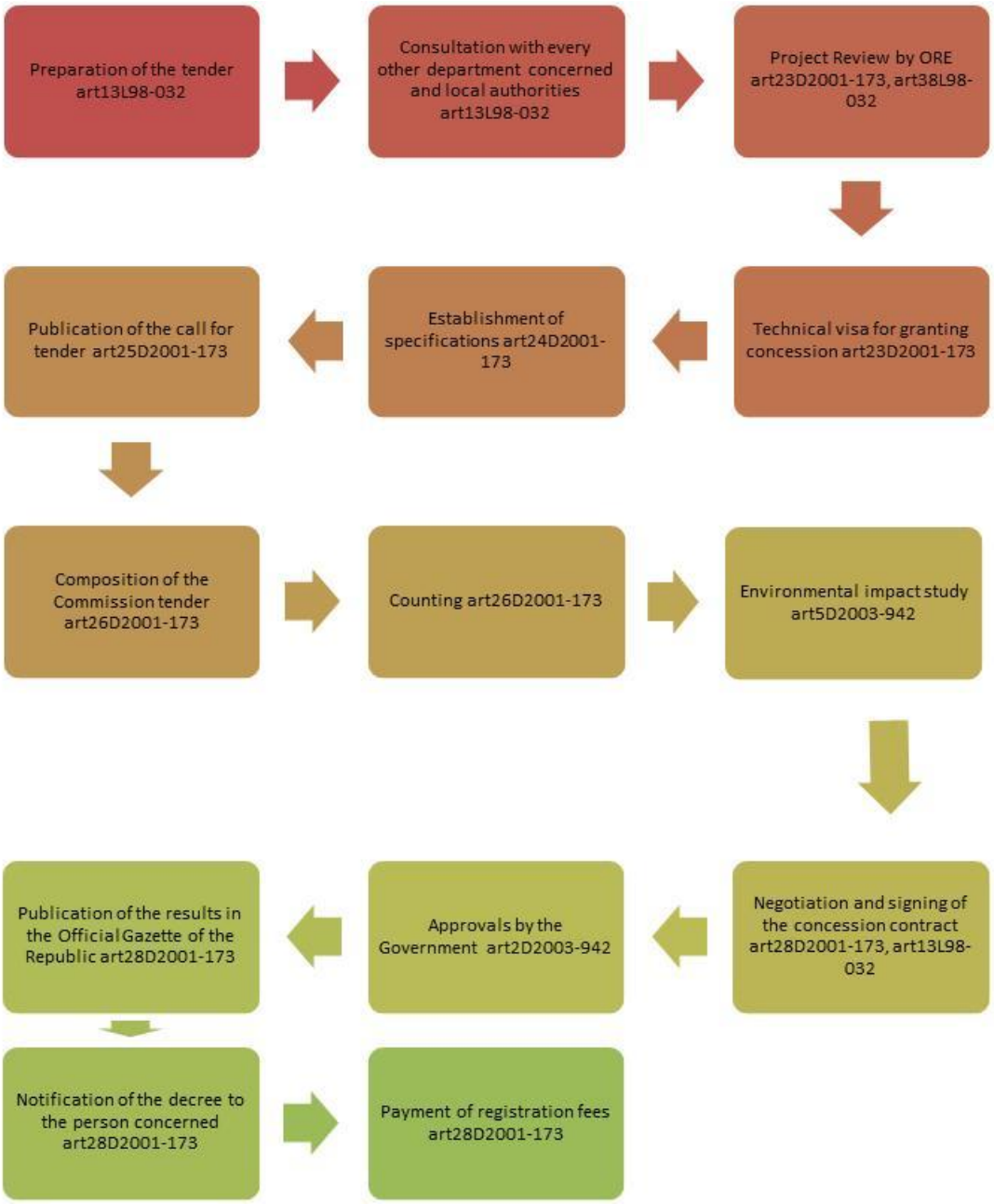

Figure 2: Procedure concession regime

According to the text, an environmental impact study should be prior to the granting of a concession. But it is noticed that the administration itself refrains from placing it before the allocation or the elaboration of the tender files. The company which obtains the concession contract performs this procedure afterwards.

The text presents some contradictions regarding the task of the different actors. Unlike the previous figure, according to the article 2 of Decree 2003-942[4], the concession contract proposed by the Basin Agency is signed by the ANDEA.

“The current procedure proposed by the tender is long; the text may consider new procedures as: consultation, invitation for application, invitation for project” [18] The raising of the minimal threshold of concession at 2500 kW instead of 500 kW would be more encouraging,

without modifying the granting procedures. In this case, the procedures concern only the medium facilities.

4.3 The authorization regime

The Decree N^{o} 2003-942[4] states in Article 3 that ", all the other hydroelectric companies whose power is equal or less than 500 kilowatts, are placed under the authorization regime". However, the Law on Electricity in this regime stipulates a power of 150 kW for production and 500 kilowatts for distribution. The Section 36 of the Water Code specifies that a public survey should be done before the issue of the authorization by the prefect (district head). The purpose of this step is to inform the public and to collect its opinions, suggestions, and disagreements in order to allow the competent authority to have all the needed elements. The district leader must write clear motivated conclusions specifying if he is favorable, unfavorable or favorable but with reservations or conditions, to the project. This is a personal opinion, and this opinion may differ from the opinion of the public[19].The intervention of the Prefect is also noted in the Malagasy text. Article 36 of Law N^{o} 98-029 [9]states that the granting of an authorization is done by the Prefect. However, Article 9 of Law N^{o} 98-032 [10] and Article 8 of Decree N^{o} 2001-173[3] assign this task to the Minister. The Article 4 of Decree N^{o} 2003-942[4] mentions that it is the ANDEA that decides by decree, on a proposal from the Director of the Basin Agency, the granting of an authorization.

The duration of the authorization must not exceed 50 years according to the Article 11 of Decree N^{o} 2003-942[4], but the Administration could revoke the operator's authorization or modify the contents of permission during operation. In case of non-renewal of the license, the licensee is required to restore the free flow of rivers. The administration has the right to require the licensee to give up the works on the dam.

According to the terms of Article 5 of the decree and raised Law N^{o} 90-003 of 21stDecember[6], on the Charter of the environment, the environmental impact study is also required to be done by the project holder. The publication of an environmental impact study report also determines the granting of authorizations under the provisions of Article 36 of the Water Code. The request should include information on the installation, presented in Article 11 of Decree 2003-942[4]. The implementation of the study should be prior to the granting of authorization under the provisions of current legislation.

Article 13 of Decree N^{o} 2003-942 [4] introduced the payment of the charge for using rivers. The operation is subject to the payment of this fee. The authorization gives no specific right of expropriation or servitude. The authorization may be withdrawn, particularly on federal waterways, if the public interest warrants it. It is personal, and any ownership change should be notified to the Prefect. The leader could be placed under a concession agreement with the ANDEA but a regime change is required due to the increase in power (Article 12 D2003-942)[4]. The payment of a registration fee according to Article 9 of Decree N^{o} 2001-173 [3] establishing the terms and conditions of application of Law N^{o} 98-032 of January 20th[10], on the reform of the electricity sector, is an obligation for the licensee at the end of the procedure. The authorization regime procedure including a call for tenders is very long as seen in the Figure 3.

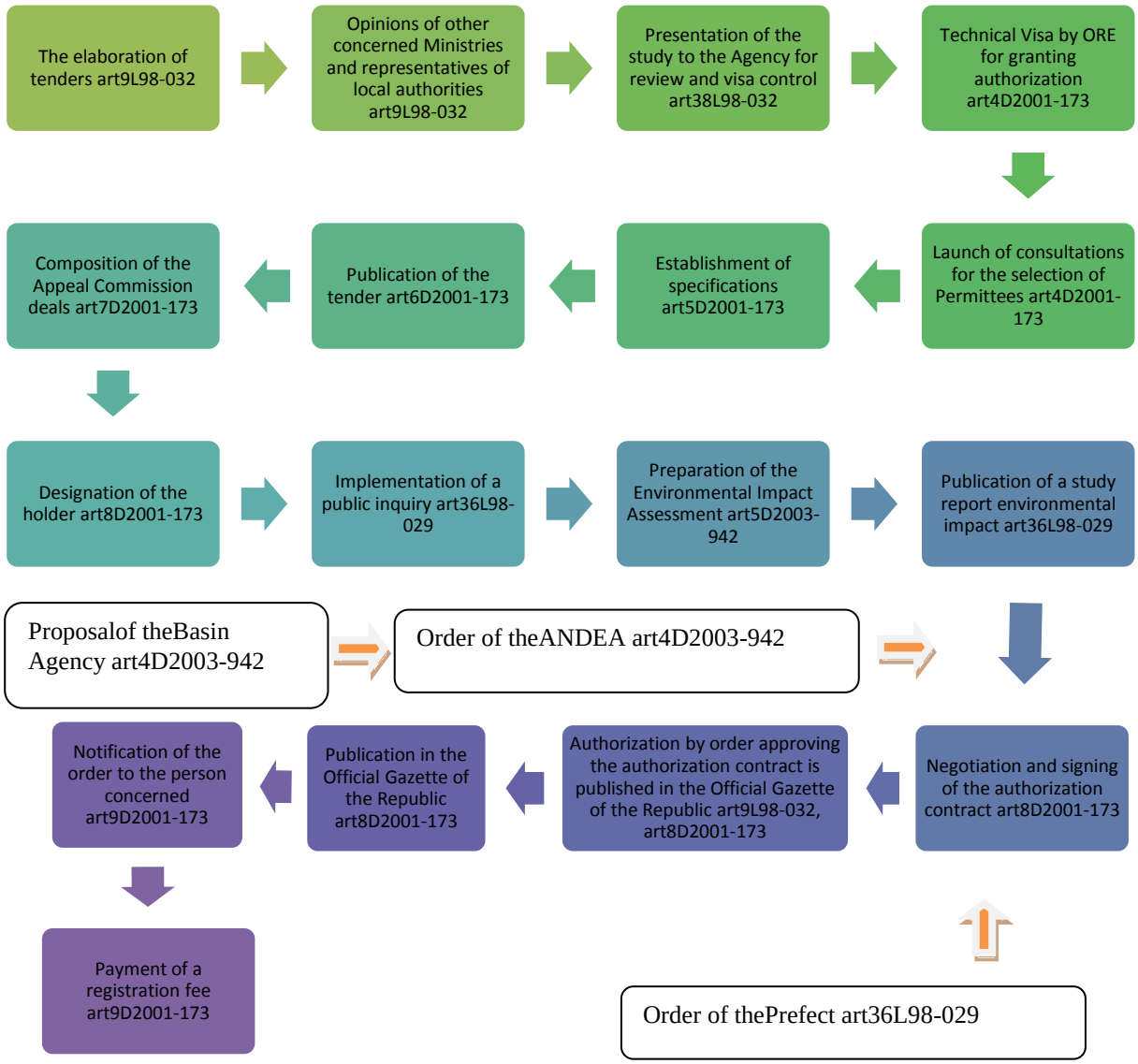

Figure 3: Procedure authorization regime by tender

Figure 3 shows the procedure from the development of the tender until the payment of the registration fees. But according to the provisions of Article 3 of the Decree, the call for tenders is the general rule and spontaneous applications are the exception. The Figure 4 below shows the procedure for a spontaneous application.

Article 4 of Decree N°2003-942[4] stipulates that the director of the Basin Agency proposes the dossiers to the ANDEA and the latter sends out the permission order. This is not the case so far. In practice, it is the Minister of energy who is in charge of the decree granting authorization. Article 36 of Law N°98-029[9] concerning water code assigns this function to the Prefect. Therefore, these provisions should be deleted to clarify the procedure for the granting of the authorization. Payment of

registration fees is also one more burden for the operator.

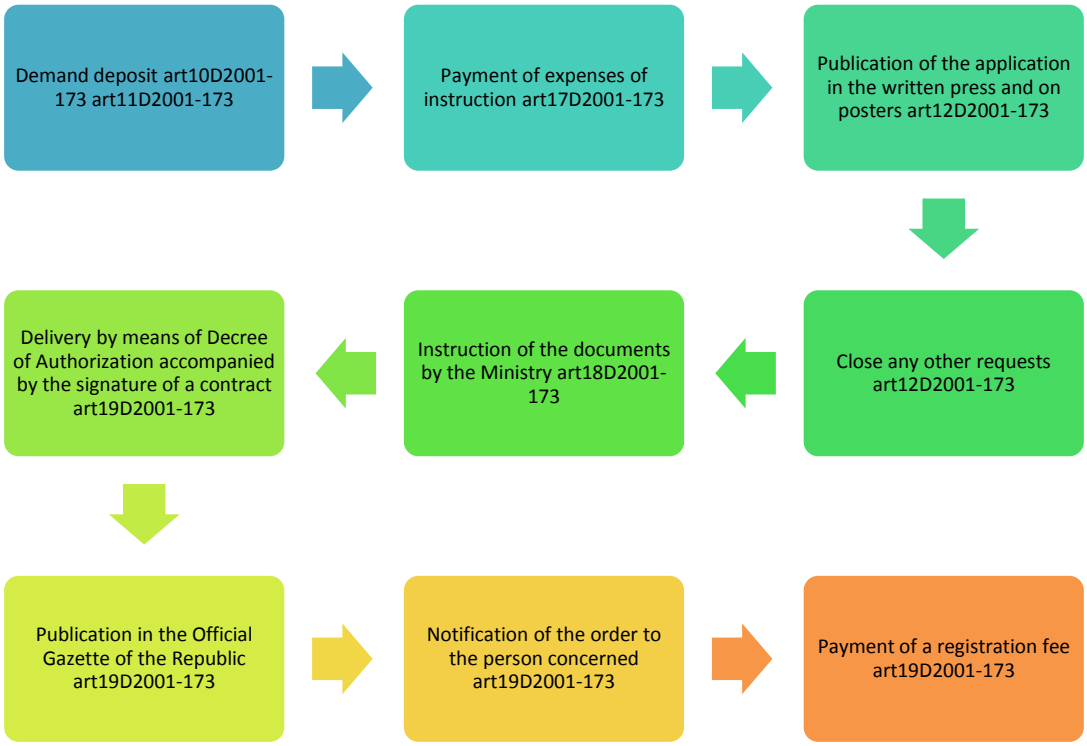

Figure 4: Procedure authorization regime by spontaneous application

Figure 4 shows that the applicant should pay the instruction fee before the exploitation of his dossier. When the dossiers of the applicant are accepted, he must pay the license fee and the registration fee.

The financial terms of the authorization granting make the project achievement difficult. It should be mentioned that the payment of these fees into the funds that will be used to finance the creation of another power station seems illogical. The exemption of such fees is thus proposed to facilitate the permission granting.

According to the Ministry of energy, "It would be more incentive for investors to modify and to revise upwards the maximum power limit for the facilities as part of the licensing agreement, for example raising the threshold contracts Authorization for hydroelectric power stations from 150kW to 1000kW and for the distribution, from 500kW to 1.000kW "[18]. Considering the current need on electricity, this proposal seems very logical.

For authorization, it is also proposed to transfer all the power of the Ministry to the regional and local authorities. In this case, it is the mayor who examines the case and decides on the authorization.

4.3 The self-production regime

Even if the production exceeds the threshold set in Article 8 of the Electricity Act [10], the scheme for self-production should not be listed on the concession regime. Section 12 of the Act provides that: "Self-production is placed under the Concession's regime only as specified in Title 3 of this Act". According to the provisions of Article 28 of the Act: "The self-production establishment and operation of

installation of which the capacity is higher than one megawatt (1 MW) for thermal plants and 500 kW for hydraulic systems, are placed under the Authorization regime. The authorizations under self-production are granted by means of decrees issued by the Minister in charge of the electrical energy on demand by any interested person, following the terms set by decree".

The Figure 5 shows the procedure for informing the Administration on the self-production.

The declaration is a procedure consisting, for an auto-producer, in informing the Administration of the establishment of the materials of self-production. It is an obligation to obtain a permit from the Administration (Article 5)[10]. The Article 27 of this Act sets a minimum threshold of 10 kW for the declaration. Below this threshold; the operator is not subject to that declaration. Consumption up to 70% of production is required by this Act so that the operation is considered as self-production. Auto-producers are allowed to negotiate and make a countering with distributors, 30% of its production according to Articles 31 and 32 of the Act[10].

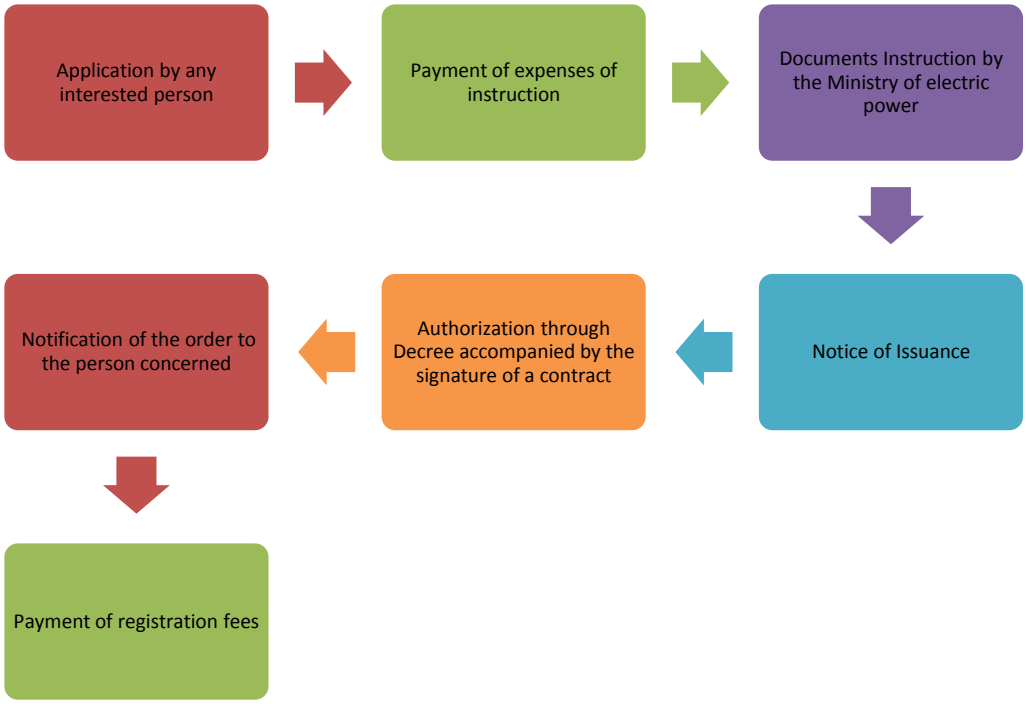

Figure 5: Procedure of self-production regime

Figure 5 shows that the self-generation procedure is the simplest procedure of the plans. It is proposed that the lower than 1000 kilowatts facilities no longer require prior authorization. In addition to the environmental and social requirements, a request from the decentralized communities is needed. At the time of production, the operator must declare two months after the installation. The activity of the Ministry is only to ensure the application of the law in this area. It will also be up to the Authorities to decide on the financial terms or technical installation in their constituencies.

5. Discussions

5.1 The regime and confusing procedures

According to the classification of power station exploitation, the Decree 2003-942 of September 9th[4],on hydroelectric water use

provides in Article 1 that “hydroelectric companies, of which maximum power (product of the height of fall by the maximum flow diversion) exceeds 500kW, are placed under the concession ". The Act 98-032 [10] which reforms the electricity sector specifies in Articles 8 and 12 that the power of 150 kilowatts (production) separate the authorization regime and the concession regime. A contradiction then remains on the separation of these two regimes. Furthermore, Article 9 of the Act provides that it is the Ministry of Energy that issues an order for the authorization of operations, while the previously cited decree stipulates in Article 4 that: "The granting of the authorization is decided by order of ANDEA on a proposal from the director of the Basin Agency".

This will allow investors to remain fraudulently corrupted on a system they think is advantageous. Besides, this classification in two regimes, could be a source of nuisance for investors who refuse to collaborate with the Administration. Texts should be precise to avoid tax evasion and fraud that disrupt the equality of operators in the market. In this logic, unjustified advantages for some operators could cause a bankruptcy to the other operators who are not able to control their production costs.

The reform of Decree N^{o} 2003-942 of September9th[4]on hydroelectric water use seems easier as far as the initiative and adoption remain at the sole discretion of the executive. Unlike the reform of the Act on the electricity sector, the adoption by the Assemblies is a longer and more complex procedure. But, in this logic, the power set by the decree should therefore be 150 kW instead of 500 kW for the production of electricity.

In view of the formalities to be fulfilled for this scheme, this proposal causes problem because the power of 150 kilowatts is too small for a concession regime.

The concept of public survey is not developed on current regulations and laws. The actors and their role in the investigation are not precise in the texts; it will transform this obligation to a simple procedure. Yet the purpose of the public survey is to inform the public of a project and to have the consent of the co-users on the new watercourse usage. The basic communities play very important roles in the course of this investigation. In the absence of the consent of the water users, the sustainability of the project is threatened. The absence of such consent will constitute an obstacle to the project phases. Other users might let the execution of a project phase to pursue, but then they will mount the opposition as soon as they find appropriate. The agreement between the co-users is important for all parties. The development of this procedure on regulatory and legislative texts is essential for a more secure environment.

The ANDEA’s roles in the texts seem very large whereas, in practice, surveys show that the operators are unaware of ANDEA. From its creation until 2008, this organization had never made up concession contract and had not issued any authorization, while hydroelectric power stations have already been established for several years. The existence of authorities on this sector puts confusion on procedures during the creation and operation of a site. A coherent reform of the legal and organizational system should be undertaken.

5.2 The creation and management by a legal entity of private law

Under section 34 of the Water Code [9], "Any natural or legal person or any entity of private law may be associated with the execution of operations relating to the operation of enterprises and in hydropower water." But this article does not mean that these people could undertake a hydroelectric exploitation. Article 2 of Law 98-032 states[10]: "In the case of legal entities of private law, they must be constituted by Malagasy law firms, in accordance with the laws and regulations in force". An individual is one person while a corporation is a group of people who pursue the same objective as a company, association, trade union, public authority or other forms. Legal persons could be governed by private law or public law. Public entities such as municipalities and regions are under public law. Their creation falls under constitutional provisions, laws and regulations. Legal persons in private law are formed by private initiatives, such as businesses, associations and others. The question here is "What legal entities of private law are excluded from the operation of electric power?"

In Malagasy language, the term “société” (company) has long been used to describe the trading company. This is so for the Civil Code[1] which provides in Article 1832 that "company is a contract by which two or more persons agree to put something in common, in order to share the benefits that will result." The Tax Code also uses this term twice. Indeed, Article 02.02.43 of the code in its first paragraph clarifies that this term is used for foreign companies which have a subsidiary in Madagascar and is governed by Malagasy legislation. It is the same for the stipulation of Article 06.01.08 of the Code. Moreover, large companies like GasyNet company, HK-Jurifisc, ETEMAD (TErrasement company of Madagascar), The firm MazarsFivoarana, Tantalum rare earth Malagasy (TREM) are firms of Malagasy law and which are technically or financially associated with international companies or foreigners. But associations and NGOs are never called to be organizations of Malagasy law. Civil society on term of the Act N^{o} 2001-026 of September 3rd[12], on the partnership agreement with civil society is thus excluded from the scope of Article 2 of Law 98-032[10].

In addition, under Article 3 of the Act N^{o} 96-033 of September 12th[8] on the liberalization of air transport in Madagascar "Operation is exclusively open to any company of Malagasy law." This concerns necessarily trading companies. Civil societies are normally excluded.

NGO (Non Governmental Organization) are one of the legal entities of private law. It is governed by Law N^{o} 96-030 of August 14th[7], on the special system for NGOs in Madagascar. In Article 2, the NGO within the meaning of this law is a group of natural or legal persons, autonomous, private, structured, legally declared and approved, and finally, who are nonprofit humanitarians.

It professionally and permanently performs charitable activities, socio-economic, socio-educational and cultural services. These activities bring sustainable human development, community self promotion and protection of the environment. It operates on the principle of volunteerism, impartiality, irrespective of race, religion or political affiliation. It has the human, material and financial resources for its interventions. But the

problem is the restriction of NGOs intervention on the operations of the electric power sector in Madagascar. The current existing facilities are at the initiative of NGOs and international organizations but they are managed by other local entities. But as the law allows NGOs intervention in socio-economic sectors, intervention on the small hydropower sector should normally be promoted. NGOs are one of the fastest growing entities in Madagascar; in addition, donors give them much more confidence. Therefore, the roles of NGOs on the small hydropower sector development should not be neglected.

Law N^{o} 2004-014 of August19th[13] recasting the system of foundations in Madagascar defines a foundation as a legal entity of private law whose creation results on one hand from a legal act by which one or more natural or legal persons permanently affect the property, rights and resources to achieve objectives of general interest and on the other hand, from the recognition of public utility by the Government. The exploitation of a small hydropower by a foundation is not permitted under that Act whereas the development of the sector requires different actors that may promote it in the interest of the local people.

Article 2 of Law N^{o} 99-004 of April 21st[11], on Cooperatives defines the cooperative as a particular civil society with a variable capital and staff. Bringing together people who have voluntarily joined together to achieve a common goal by the constitution of a collegially managed business, providing a fair share of the capital required and accepting a fair participation in the risks and the outcomes of that business. The cooperative system has been inspired for a long time by the Socialist regime. The current transportation utilities are mostly exploited in this way. The advantage of the cooperative form is the combination of means to accomplish a mission in the interest of members. The means at the disposal of the cooperative remain the property of the members, but the control of the general functioning remains in the hands of the cooperative.

The development of hydroelectric power sector could also be initiated by the “cooperative” system, but unfortunately the text does not allow groups of this kind to undertake in this sector.

Normally, local associations, foundations, NGOs could therefore not create or manage a hydroelectric power station except if they manage to form a society of Malagasy law. An association is governed by Ordinance N^{o} 60-133 of October 3rd[14], whereas companies are governed by commercial laws. According to section 2 of this Act, "An association is the convention whereby two or more persons permanently pool their knowledge or activity for a purpose other than sharing profits. It is governed, by the general principles of law applicable to contracts of obligations.” The association arrangements are contrary to the principle of company especially regarding the sharing of profit.

For the case of Madagascar at the present time, donors are wary of the organization of the State and its direct branches or decentralized authorities. The partnership with associations is a newer device adopted by donors to promote activities at the decentralized community level. The latter fails to undertake great work in their constituencies. Associations are generally excluded from the operation according to that Act. The development of this sector seems to be compromised.

According to an expert: "The model leading to sustainable success of an electrification (rural and urban) is based on the strengthening of private initiatives in a framework of free and creative competition"[16]. Currently, in practice, no entity is excluded on hydroelectric exploitation generally, rural exploitations are only for small farms. Moreover, operations for the supply of urban centers are totally undertaken by trading companies. The problem may arise when one day the country estate concerns larger cities. "To advance more consistently the energy sector in Madagascar, it is crucial to have full and complete involvement of all stakeholders in the sector with other development partners"[18]. The term "company" in section 1 of Law 98-032 [10]could be replaced by a more general term; the suggestions are: using the term "entity Malagasy law" or deleting the paragraph.

6. Conclusion

It appeared from this study that the legal framework for hydroelectric power is defective especially in procedures. Indeed, the current procedure including a call for tenders is very long compared to the size of the actual installation. Raising the minimum threshold concession to 2500 kW instead of 500 kW will be an incentive for operators. Such a procedure is intended only for large and medium installations. The applicant for authorization should contribute to the funding for electrification. Still, this funding finances the creation of new stations. Besides, the charges can be a barrier for the concession of an authorization. It was thus proposed to exempt such fees to facilitate the conceding of that permission. The enhancement of the authorization threshold to 1000 KW seems beneficial to incite operators to embark on the development especially of rural electrification. For authorization, it was also proposed to transfer all the competence of the Ministry on hydroelectric power management to the regional and local authorities. In this case, it is the mayor who examines the case and decides on the authorization.

A coherent reform of the legal and organizational system was also proposed to accurately determine the competence of each authority involved in the process. The strengthening of private initiatives in a framework of free and creative competition was also proposed in order to fully and totally involves all stakeholders. The text should thus allow non-commercial entities to participate in the operation as the financial profitability is hardly achieved in this sector.

The use of the VSM tool in this research permitted to display the current procedures. The study resulted in changing fields or methods of application instead of establishing new and lighter procedures. The flaws of the legal framework have been identified. A new reform can easily be engaged.

7. References

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