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The Environmental Rural Cadaster and Its Interface with Instruments of Environmental Regularization — Licensing and Water Permits

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Abstract: This paper sought to inform about the Environmental Rural Cadaster (ERC), as well as the instruments of environmental licensing and of water permits, and the objectives of the National Policies of the Environment and of Water Resources connected to them. Finally, it was intended to draw potential interfaces between ERC and the instruments environmental licensing and water permits. It was verified that the objectives of these instruments have common aspects, and that the ERC could be refined with indicators and information enough in order to become a licensing instrument more adequate to the reality and dynamics of existing agricultural and livestock areas. Water management, however, should continue to be performed on the water basin.

Key words: environmental rural cadastre, rural licensing, water grant, permit

1. Introduction

The constant legislative alterations in the Brazilian forestry policy, as well as the lack of propagation of this information and the promotion of contradictory public policies led to a situation of juridical insecurity in the countryside. That, in turn, brought the necessity of rendering recognition to the consolidated rural areas by the new Forest Code, law 12.651, of 25th of May, 2012. The previous law, of 1965, was modified dozens of times through the years, by provisional measures, a direct instrument of the executive power that requires being voted by the legislative within a few months. However, these provisional measures that altered the law were never voted, generating conflicting situations and juridical insecurity to entrepreneurs. To signalize a new commitment for environmental regularization, the current forestry law (Forest Code) created the Environmental Rural Cadaster (ERC) and established that the states elaborate Programs of Environmental Regularization (PER), aiming to address previous liabilities and restore the ecosystem in areas identified by the cadaster, which is made for each individual rural property. It was sought to explore the potential of the Environmental Rural Cadaster in its interface with an instrument of the environmental policy, that is, the environmental licensing, and with an instrument of the water resources policy, the water permit, in the specific case of rural activities developed by farmers. The objectives were to know the legal instrument and the numbers reached by the ERC, raise information on the instruments of environmental regularization in the current legislation and verify possible interfaces among those instruments, considering the purpose of each, stated by law.

2. Methodology

In order to know the ERC, the pertinent forestry

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legislation was evaluated, that is, the law known as Brazilian Forest Code and its regulating decrees, as well as the mechanisms and goals of the cadaster. The federal law nº 12.651 is of 2012, and introduces several requirements for the protection of natural vegetation and control instruments. As an example, there is the legal reserve (LR), an area of the rural property with natural vegetation that has to be maintained to support the rehabilitation of ecological processes and promote conservation of biodiversity, as well as harbor and protect wild fauna and native flora. In the state of Minas Gerais, this requirement of legal reserve must correspond to 20% of the rural property. Also, as another example, this law regulates areas of permanent preservation (APP), in many cases associated with the protection of springs, watercourses or humid areas, and in other cases associated to the topography and geomorphology, with the environmental functions of preserving water resources, landscape, geological stability, biodiversity, protecting the soil and facilitating gene flow of native fauna and flora.

The official numbers of the ERC were gathered, as classified by the Brazilian Forestry Service — SFB, and by EMBRAPA (the Brazilian Enterprise of Farming Research), and in state level by the State Agriculture, Livestock and Provision Secretariat. This allowed the extraction of relevant information on the universe of rural properties in Brazil and in Minas Gerais. Furthermore, EMBRAPA's study on protected areas and agriculture land use contributed to shed light on the role of farmers in natural resources conservation in Brazil.

A compilation of the main requirements of environmental regularization in the legislation was made, as well as its objectives. Lastly, possible interfaces of the ERC with these instruments were drawn, in order to verify whether the ERC has the potential of becoming the main support to the environmental regularization for agricultural and livestock activities.

3. Development

3.1 ERC

The ERC, mandatory registry for all rural properties and rural ownerships, has the lawful expressed objective of integrating the environmental information of these properties/ownerships, composing data base to control, monitor, economic and environmental plan, and deforestation combat, according to the new Forest Code [1, 2].

"Environmental information" in the ERC — and also by law — are classified as native vegetation, public utility areas, Areas of Permanent Preservation (APP), restricted use areas, consolidated areas and Legal Reserve (LR), as well as areas under restoration, regeneration, recuperation or compensation [3].

The legal deadline for the mandatory registry of rural properties in the ERC would be May 5th, 2016 — a year after its implementation (in 2014), extended by another year, as predicted by the Decree 7.830, in 2012. However, by the end of that period, other extensions were published, due now on the 31st of December, 2018, given that not all regions of the country were able to prepare structure and personnel to propagate, train, and provide support for the registry. The cadasters are still being evaluated, bit by bit, and many will have to be rectified to correct information, though it is understood that this was the first effort on national level to gather and understand environmental information of each rural property and of a larger area (i.e., a municipality), and thus, errors are expected, as is the process of continuous improvement of both the system and the knowledge of this instrument and of the legislation by the people. The time frame given for the ERC was used simultaneously to inform, constitute team, train and enforce this legal requirement all across the country. Until December 31st, 2017, there had been a total of 4.735.443 rural properties registered in Brazil, representing around 400 million hectares [4].

According to the Agriculture, Livestock and Provision Secretariat in Minas Gerais, on May 5th,

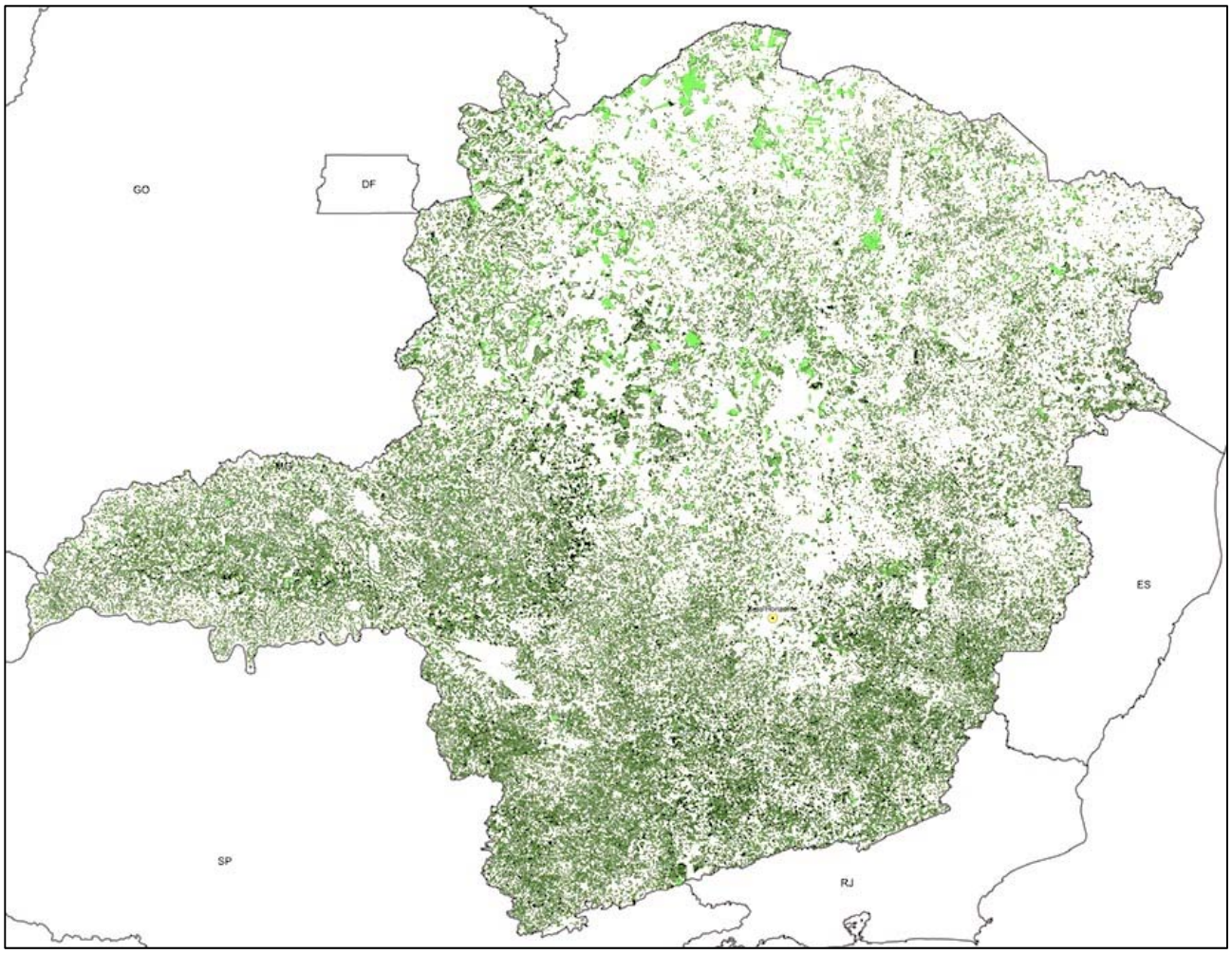

Fig. 1 Map available by the Brazilian Forestry Service (SFB) with remainings of native vegetation, LR and APP registered in rural properties or ownerships in Minas Gerais until April 4, 2016 (not including public preserved areas or indigenous lands).

2016, there had been 522.477 rural properties registered in the State, which corresponds to 94,8% of all the rural properties — as stated in the latest agriculture and livestock census [5]. It was not possible to obtain recent numbers (2018), due to the fact that the system of the state is out of order, facing technical and financial problems, and thus far preventing both the access and the uploading of cadasters to the national base. Nevertheless, data from the Brazilian Forestry Service indicate that the number in the state has surpassed 675 thousand cadasters, on an area over 40 million hectares. The significant adhesion to the registry in the state of Minas Gerais, in such short time, considering the size of the challenge and the fact that it is declaratory, constitutes the best example of enforcement of a public policy, well disseminated, with offer of trainings and expanded execution. That shows the farmers have will to regularize the situation of their farms through the aid of an accessible instrument.

The ERC is a requirement to access the Program of Environmental Regularization (PER), instituted by the new Forest Code, with the purpose to adequate and restitute areas of permanent preservation (APP), of legal reserve (LR) and of restricted use, according to Decree 8.235 [6]. This adequation may include processes of recuperation, recomposition, regeneration or compensation, the latter through areas outside of the rural property in pursue of adequacy. It also includes, in the case of APP, LR and restricted areas with consolidated use, the employment of soil and water

conservation techniques, as well as best practices in agronomy, according to §§9 to 11 of article 61-A of the law 12.651 [1, 2].

In national level, both Embrapa and Nasa attest that the Brazilian area dedicated to crops is inferior to 8% of the territory of the country [7, 8]. The farming activities, traditional in the state of Minas Gerais, are developed in properties that correspond to 57% of the area of the state, that is, approximately 37 million hectares, yet only a part of it is dedicated to production. Around 33% of this area, over 12 million hectares, is preserved with native vegetation in rural properties [9]. On the other hand, area legally attributed to preservation (public domain areas) and to indigenous lands, on the beginning of 2017, occupied 6,9% of the area of the state, which represents a little over 4 million hectares, among really preserved areas and those "of sustainable use", given that there are conservation areas in that category as well [7, 8].

Thus, it is possible to notice clearly the commitment of the state and, specially, of rural producers, to the environmental preservation. The agriculture technologies developed in Brazil are milestones for the production, already acknowledged in the world. It is important, however, to reach and amplify to a greater number of farms the attention to certain aspects of the production areas and the whole farm: best practices and conservationist management, recommended by the Forest Code of 2012. The tropical agriculture developed decades ago in Brazil is rich in technologies that conserve soil, favor water infiltration, adopt minimum cultivation, capture large quantities of carbon and meet essential role in food and nutrition security, as well as maintaining families in the countryside. It is also responsible for the production of bioenergy and fibers used in the confection of basic human needs. It is important to invest in technical assistance and rural extension to amplify the reach of these technologies, and public policies must work towards integrated solutions to meet this goal. Investing in agriculture — crops, livestock, forestry and fisheries — and rural development are powerful tools to end poverty and hunger, and open the door to sustainable development. Agriculture can play a major role in combating climate change [10].

3.2 Environmental Licensing and Water Permit

Besides the ERC (and the PER, still neither regulated, nor implemented in Minas Gerais), the rural producers must also license the activities developed in the rural property, as well as the water uses, through water permits. All these obligations come from different policies: law 12.651, of 2012 (Forest Code — already extensively mentioned), law 6.938, of 1981, that instituted the National Environment Policy (NEP), and law 9.433, of 1997, that instituted the National Water Resources Policy (NWRP). From the NEP, three instruments stand out: the establishment of environmental quality standards, environmental impact assessment and environmental licensing. Therefore, during the process of licensing, the potential impacts of the activities are assessed and measures are proposed to their mitigation (or, if impossible, compensation), assuring that the standards of environmental quality are respected. From the NWRP, one of the instruments for water resources management and regulation is the permit — the right to use water — a form of authorization that controls points of water withdrawals (or intervention), flow rates or volumes allowed and usage, for each object, imposing still criteria for monitoring usage and restrictions, considering that the water must attend to multiple uses and that, in case of scarcity, there are priorities defined by law.

It is emphasized that the licensing must occur preventively, that is, before the installation of a new business or activity. Nonetheless, Minas Gerais is a state traditionally recognized by its production of agriculture, livestock and commercial forests, and most part of the rural properties already have developed a multitude of activities for many decades. The model of licensing, however, does not distinguish new developments from old ones, and they all must go

through licensing “in corrective manner”, which is the same way that is applied for new businesses that unlawfully start without a license and are then detected and forced to comply.

In Minas Gerais, the environmental licensing has just undergone a profound change (although the above remark is still valid). It is done either in three stages, each resulting in a specific license (previous license, installation license and operation license), or in a single step, with the Simplified Environmental License (SEL). In some cases, two or even three of the stages can occur simultaneously, depending on the modality of licensing. The modality of licensing is defined by criteria that take into account the size, the pollution potential and the location of the activity or enterprise. The model applies to all potentially pollutant or environmentally degrading activities, such as mining developments, energy generation, infrastructure, industry, rural activities or others.

The modalities of license and the need to adopt location criteria were a legal determination imposed by the state law 21.972, of 2016, still in process of transition and regulation [11]. In December of 2017, one regulation was finished, the Normative Deliberation nº 217, in a long participative process of the State Council for Environmental Policy (COPAM), directed by the Environment and Sustainable Development Secretariat. The ND COPAM nº 217, result of this process, came into force in March 6th, 2018. Thus, the new licensing processes will follow the current regulation, whereas previously emitted licenses and authorizations will go through this process only when at the time of renewal (around 4 years). In the countryside, there is a predominance of small farming areas, subjected mostly to the Simplified Environmental License (SEL), although the presence of one of the location criteria might lead to an alteration to a more complex modality of license, in addition to the demand for studies that confer knowledge of impacts and prevention or protection measures regarding the identified location factor.

In order to maintain the license, it is necessary to comply with all the conditions imposed and monitor the required variables, in addition to fulfilling all the remaining legal criteria. The achievement of the legal document is not the ultimate finality of licensing. The purposes of licensing are the compatibilization of social-economic development with environmental quality preservation and ecological balance, as well as the preservation and restoration of environmental resources, for rational use and permanent availability, according to the objectives of the NEP [12].

The regulations of water use derive from another policy, the NWRP, which differs from the one that instituted the environmental licensing. Thereby, its authorization is effected through the emission of permits, and in Minas Gerais there is, additionally, the modality of cadaster of insignificant use [13]. The flow rate or the volume, as well as the means of withdrawal (or wastewater discharge) or intervention, all that define to which modality a particular water use is subjected to. Water withdrawals can be superficial or groundwater, and in all cases, except for the insignificant uses, a qualified professional is needed, with emission of Technical Liability Annotation (TLA). In the same way as the environmental licensing, the final purpose is not the obtainment of the permit, but the rational water use, to ensure the present and future generations the necessary availability of water, in quality standards adequate to the respective uses, according to the NWRP, article 2º [14].

These instruments of environmental regularization in the state of Minas Gerais are continuous processes, with monitoring requirements and bound by compliance of defined conditions for each case, in addition to all the applicable legal obligations. The mechanisms are standardized and, not infrequently, of difficult compliance by farmers, given the different reality and dynamics of rural activities. Especially considering that the ERC has shown, until 2017, that about 90% of rural properties in Minas Gerais are smallholders, with maximum of 4 fiscal modules, a

measurement defined for each municipality taking into account its land ownership and tenure model, and its technical-economical characteristics.

Considering the objectives of the ERC, previously mentioned, with emphasis on the words “integrate”, “data base”, “control”, “monitor”, “economic and environmental plan”, “deforestation combat”, it is possible to glimpse common issues and interests among the policies of forestry, environment and water resources. It is also important to remember that the latest Forest Code (2012) created the ERC and also brought the necessity to employ soil and water conservation techniques.

Especially in rural areas, the objective of the NEP of “preservation and restoration of environmental resources, for rational use and permanent availability” has direct interface with the ERC (and the areas it identifies for recuperation - promoted by the PER), and with the best practices in productive areas. There is also clear interface of the ERC goals with NEP’s objective of “compatibilization of social-economic development with environmental quality preservation and ecological balance”, although it might be necessary to aggregate information to the ERC platform, to work as indicators for environmental control of certain aspects, such as wastewater, solid residues and atmospheric effluents.

Regarding water, the ERC indicates springs, ponds, lakes (natural or artificial) and watercourses, as well as the necessary protection of their immediate surroundings. The Forest Code determines the use of best agricultural practices and techniques for soil and water conservation. This, in general, has direct interface with objectives of the NWRP, regarding both quantity and quality of water, although no measurement is predicted. Nevertheless, the ERC doesn’t address withdrawals and discharges, nor impacts of dams in water management (and the broader spectrum of environmental impacts). It also doesn’t monitor quality of water and can’t be broken into the limits of water basins. Such elements are a few of the ones essential to manage water resources, which exceed the borders of properties and municipalities. Hence the need for more information, in addition to the ERC, to manage water as a limited asset, with multiple use and public domain.

4. Conclusion

The ERC has great potential to present farmers with an environmental licensing system that is more adequate to the reality and dynamics of rural activities. This can be acquired by adding few information, such as indicators for solid residues, liquid and gaseous effluents (considering yet the reuse prospective), improvements obtained by soil and water conservation techniques, and other agricultural practices that account for environmental issues as well. The instrument, with due modifications, can also support the creation of incentives that lead to improvement of water quality and quantity at the scale of rural properties, and support the management of water resources in larger scale, in water basins, if viewed together with the current instruments of NWRP. The ERC also has potential to become integrated base of information to acknowledge the role of farmers in the environment and in society, being able to induce policies of payment for environmental services, which are know to be far less expensive than the costs involved in water treatment and transportation. However, it is still understood as a peripheral instrument by governments and agencies, perhaps due to its constant difficulties and functioning problems. It must be pointed, however, that as the first instrument of mapping of its kind in national level, and done in record timing, the problems and obstacles were already expected. From now on, the ERC will either remain peripheral and with a repetition of the same problems, or it will be part of the list of national priorities, yielding continuous efforts and investments that will increasingly assist Brazil in becoming acknowledged as an environmental and productive potency, and this is possible precisely in the rural area. Nonetheless, there is the risk that the same practiced disconnection among

the analyzed policies will prevail, once more. Thus, it is suggested that a propositional research be developed, aggregating data to this instrument, in order to support water management and create an adequate form of licensing, through the ERC, to the agriculture, livestock and forestry activities. This new model should lead indeed to environmental and productive improvements, encouraging the maintenance of families in the countryside and contributing to the reach of the Sustainable Development Goals proposed by the United Nations in 2015.

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