For its geographic position and ecological aspects, the Brazilian Cerrado is highly important for Brazilian society and for agricultural activities developed in its lands. The Cerrado is a unique environment in the South American context for its “water tank” effect (as home to large water reservoirs), biodiversity and social diversity. Its ability to receive modern agriculture and its global supply capacity, make the Cerrado an area prone to major challenges.

The relationship between production and conservation has long left the ideological context and now has a central importance in the contemporary economic debate. This is what it is about: the Brazilian economy and the future of its main pillars, i.e., agribusiness and natural capital.

CEA’s work restates the fact that given its grandimensional expressions and its state of conservation, the Brazilian Cerrado still allows conciliation between production and conservation.

The best way to face the challenge of conciliating the rising pressure on food production and environmental conservation measures is by using the best scientific knowledge available and adding it to the debate.

CEA’s work was keen to approach a community of Brazilian scientists who stand out their qualified work carried in the Cerrado.

Furthermore, the work was able to highlight the hottest topics involving the Brazilian Cerrado, maintaining the perspective strategy of trying to conciliate sustainable production and conservation. Analysis and consultations with experts have shown the risks and challenges required for compliance.

In my opinion, the work structure highlights what would be most relevant in terms of strategies to be adopted, out of which I would highlight 4: Sustainable intensification of livestock, Environmental Adjustment to the Forest Code, Conservation Incentives and Territorial Management integrating peoples and communities.

I allow myself to make a few comments on elements of this structure below, and, at the same time, suggest new paths to overcome the agricultural production and conservation challenge.

**Sustainable intensification of livestock in the Cerrado**

Initiatives for sustainable intensification of livestock in Cerrado are extremely relevant and strategic to accommodate new territorial challenges, without loss of remnant vegetation. Consolidated agricultural frontiers have proved that this process is in progress and has huge potential to promote the livestock-soybean transition on pasture lands. Over the last decade, more than half of the agricultural expansion in the Cerrado occurred on pasture lands, except in the Matopiba that, for not having anthropic areas with agricultural potential, experienced most of its expansion across areas of native vegetation.

Integrated crop-livestock-forestry systems (ICLF) also have a large potential when it comes to the physical and weather conditions of the Cerrado, allowing also improvement of soil conditions, as these are often poor and acid, and enduring seasonal climatic changes, very common in the region. Areas with grain production potential could receive ICLF systems, while areas occupied by livestock could also receive silvopastoral systems, where forest assets could meet different demands and be customized as such.

**Environmental Adjustment to the Forest Code and Cerrado Conservation Incentives**
The Forest Code creates a real possibility of a new conservation agenda in the Cerrado, this time via private means, using current and future liabilities under the Forest Code and compensation mechanisms provided by law.

Estimations of Forest Code liabilities in the Cerrado biome show that approximately 3 million hectares should be either restored or compensated in remaining areas.

The CRA (Environmental Reserve Quotas) market, currently being regulated, is introduced as one of the environmental compensation strategies, despite its limited size. Notwithstanding the above, it has a strong appeal to valuation of environmental services. In this sense, the CRA market opens an unprecedented opportunity in regional scale as an unified platform of Payment for Environmental Services.

It’s worth reminding that at least 40Mha of natural Cerrado vegetation is likely to suffer legal deforestation. Considering some of the soybean cultivation potential criteria, only 15Mi of these total remnants are suitable for agriculture; the rest (25Mha) could be part of compensation strategies, originating a robust set of private parks. Also worthy of highlight is the fact that out of this set of unsuitable areas, 18Mi occur in Matopiba. In other words, one can still plan a Forest Code implementation strategy to compensate the entire future expansion in the region, in remnant areas of the Cerrado with low agricultural potential, thus avoiding the conservation vs. production conflict.

In October 2010, Brazil and other members of the UN Convention on Biological Diversity (CBD) approved the Nagoya Protocol that established the Aichi Targets. One of the targets determines that by 2020, at least 17% of each national biome should be preserved by systems of protected areas. These targets may be resolved in the form of private reserves from current and future liabilities of the Forest Code.

CEA’s work highlighted the map of conservation priorities for the Cerrado, as established by a group of experts and published by the WWF. Given the government’s inability – through the MMA – to negotiate a conservation agenda for the Cerrado, as the biome is the object of desire of frontier agriculture, the possibilistic strategy of promoting conservation would be associating it to environmental compliance as requested by the Forest Code, after all, nearly 3 million hectares of liabilities could be compensated and establish a new network of private parks, thus complying with Forest Code obligations and helping to achieve the Aichi targets.

**Territorial Management Integrating Peoples and Communities**

I strongly recommend CLUA’s financial support to reinforce and create the capacities required for a wide social cartography effort in the Cerrado region. The Amazon is a successful and effective example of empowerment of a network of NGOs, with strong analysis and spatial modeling capacity. Since Prodes (Amazon deforestation monitoring program) was launched in 2004, organizations gained a new capacity of social control over the territory, and began using public policies to propose new solutions to avoid deforestation. The reduced deforestation observed as of 2004 has something to do with this increased capacity for analysis, social control and exercising greater influence in public policies.

The Cerrado does not have the same capacity among regional NGOs, which explains why the presence of social groups and their demands is still not included in official maps. So, inclusion of these social groups in maps may be the first stage of a strategy to negotiate rights to land and avoid future conflicts.

Indigenous demands for territories registered with Funai, and still under study total 123 areas spread across the Cerrado. In the private conservation mosaics to be designed and created through compliance with the Forest Code, social groups and their existing and demanded territories could be included in such plans.
New concepts for corridors and mosaics could combine legal reserves in scale and embrace social and environmental territories (quilombolas, indigenous lands, coconut breakers, among others), optimizing the conservation and physical integrity of these legal reserves. Management pacts would allow traditional activities at the same time they would guarantee protection of wide Cerrado spaces.

**New inputs for territorial planning in the Cerrado**

For a period of time, Agrosatelite’s study undertaken by the Moore Foundation and published upon conclusion of CEA’s work could not be accessed. That work brings a detailed diagnosis of the dynamics of use and land cover, associated to the expansion of grain production in the Cerrado biome between 2000 and 2014. The period marks the large agricultural expansion in the biome.

The research scanned the nearly 204 million hectares of the Cerrado biome, allowing a better understanding on the dynamics of expansion of the cultivated area and how these dynamics relate to land use changes in the region. One of the main findings of the study is the fact that it points out an opportunity for expansion of soybean production in areas that have once been occupied by pasture lands, with no need for new deforestations.

The dynamics of expansion of agriculture across the Cerrado in the last decade was made essentially over anthropized areas (74%), except for the Matopiba where occupation was mainly in Cerrado areas (63%).

In the entire Cerrado biome, at least 33.4 million hectares of anthropized areas would today be suitable for conversion into grain agriculture. This far outweighs the scenario of demand and expansion provided by the Ministry of Agriculture, which foresees that by 2025, 12 million hectares of new agricultural areas (soybeans + sugarcane) would be required, being 3.4 million only in the Matopiba region.

In part of Brazil the livestock activity occupies a strategic position in resolution of challenges of expansion of agricultural areas. The sustainable intensification of livestock would allow the fixation of certain production geographies normally associated to the industry, and constituting clusters of efficient production. On the other hand, it would turn available areas with economic suitability for grain expansion. The research also indicates areas that don’t have the potential for cultivation, but could serve for forest compensation, or conducive for conservation in private areas aiming to comply with the Forest Code. The work carried out by Agrosatelite, a form of production zoning may also be an excellent tool for conservation planning without clashing with the territorial interests of agriculture.

**Opportunities in Cerrado’s Old Frontiers**

There are left 33.4 million hectares of anthropic areas with high and average potential for soybean cultivation. These are largely occupied by pastures, and the government should rationally orient the future expansion in the Cerrado biome grains area to this region.

These areas have appropriate soil, weather, declivity and altitude to receive a good deal of future expansion of grain agriculture. If we subtract out of these 33.4 million hectares the sugarcane areas (5 Mi ha), this would mean a sufficient inventory of lands to increase the area intended for grain cultivation in this biome in up to 1.5 times without new deforestation. Most part of this land inventory is outside the Matopiba. I would dare to say that Brazil’s next agricultural

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1 Geospatial analyses of the annual crops dynamic in the brazilian Cerrado biome
frontier will be in pasture areas suitable for soybean production, not necessarily degraded, in Goiás, Mato Grosso and Mato Grosso do Sul.

A few incentives in agricultural policies could reward pasture-agriculture conversion strategies through rural credit. After all, this movement would optimize land use, reduce emissions and the economic impact of the so-called “Brazil cost”, since these areas are closer to country’s existing transport logistic facilities.