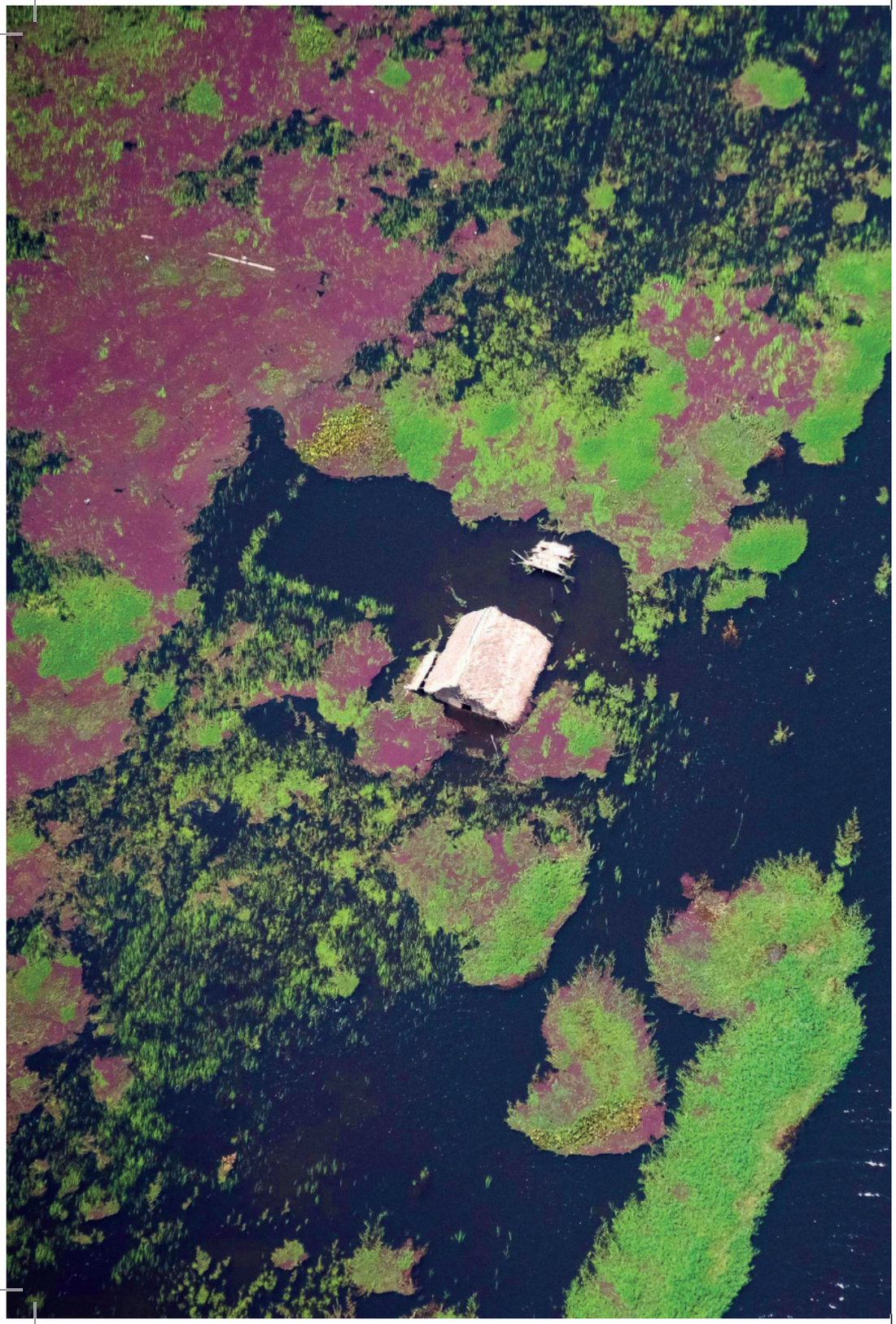
BIOECONOMY STATE STRATEGY OF THE STATE OF PARÁ



THANKS

When policy is designed by many hands, with respect to the different challenges, expectations and knowledge of the most different areas within the same management, the result is the certainty that we walk together towards what we most await:
the achievement of the Bioeconomy that we want as a people from Pará. Therefore, it is essential to thank each institution and member of the group that worked hard, practiced qualitative listening, researched concepts and initiatives that inspired us, and compiled the results of meetings, workshops and reviews for our State Bioeconomy Strategy.
We are sure that in this way, we deliver a robust and, at the same time, strategic document to serve as the basis for the State Bioeconomy Plan, which will be built with sectorial meetings and consultations with civil society. You were giants just like our State! May our missions continue together and in the same direction.
We are especially grateful for the support of IPAM, in the technical and conceptual basis and in the mediation and systematization of the workshops.

Institutions:

SEMAS (Secretaria de Meio Ambiente e Sustentabilidade do Pará)
Secretary of Environment and Sustainability of Pará

SEDAP (Secretaria de Desenvolvimento Agropecuário e da Pesca)
Agricultural, Livestock and Fishery Development Department

SEDEME (Secretaria de Estado de Desenvolvimento Econômico, Mineração e Energia)
State Secretariat for Economic Development, Mining and Energy

SECTET (Secretaria de Estado de Ciência, Tecnologia e Educação Profissional e Tecnológica)
State Secretariat for Science, Technology and Professional and Technological Education

IDEFLOR-BIO (Instituto de Desenvolvimento Florestal e da Biodiversidade do Estado do Pará) Forest Development and Biodiversity Institute for the State of Pará

EMATER (Empresa de Assistência Técnica e Extensão Rural)
Technical Assistance and Rural Extension Company

EMBRAPA (Empresa Brasileira de Pesquisa Agropecuária)
Brazilian Agricultural Research Company

FAPESPA (Fundação Amazônia de Amparo a Estudos e Pesquisas do Pará)
Amazon Foundation for Studies and Research Support of Pará

IPAM (Instituto de Pesquisa Ambiental da Amazônia)
Amazon Environmental Research Institute Conceptual basis, mediation and systematization

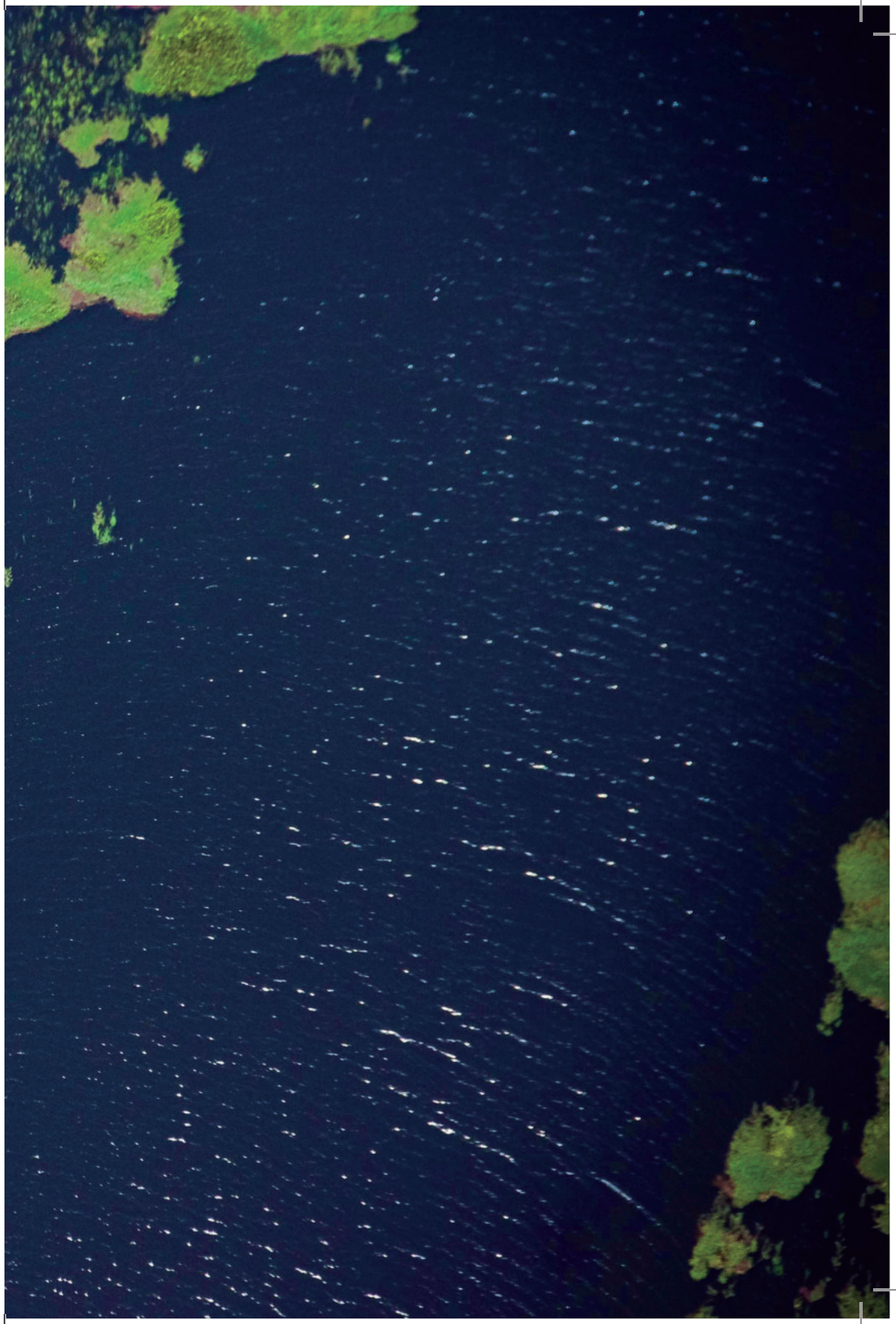
3 | PURSUED RESULTS

RESULTS

- Expansion of the State's forest area;
- Expansion of agroforestry and regenerative production systems;
- Increase and diversification of the production matrix;
- Adding value, increasing sales and expanding markets;
- Rescue and dissemination of traditional Amazon knowledge.

PURSUED IMPACTS

- Biodiversity Conservation;
- Deforestation Reduction/GHG Reduction/Climate Neutrality;
- Guarantee of Food Safety to local communities;
- Improved quality of life;
- Increased employment and income;
- Guarantee of the rights of local populations;
- Social and environmental integrity.



Amazon, with all its abundant variety of natural genetic resources represents one of the richest patrimonies of the globe, with a gigantic economic potential yet unexplored, which waste through deforestation and environmental degradation implicate in the loss of potentially promising alternatives to the regional development, that should be captained by innovative enterprises, associated to science and technology, focused on sustainable management of all these fountains of wealth. The environmental theme is the geopolitical pillar of the contemporary world whose climatic and biodiversity agenda are the main foundation. By means of equating environmental conservation and social justice, we faithfully have the balance as an economic variant. It is essential to walk towards the fair and vocationated development role, based on the incentive to sustainable business, within the creation of green jobs and income (especially for youngsters and women). Pará is highlighted in national and international context due to its mineral, energetic and agricultural potential. As one ofthe most economic frontiers of Legal Amazon, it is susceptible to political and market context. These events may bringexternalities, such as the reflection on deforestation. Balancing economic development with the proper management ofnatural resources is an enormous challenge; it demands efficiency on combat actions of illegal deforestation and on adoption of public policies that give sustainable economic alternatives. By these means, driving the economy from the natural capital present in the forest and through bioeconomy. It is the opportunity

• Identification, protection and promotion of added value to the economic use of genetic heritage and traditional knowledge and practices;

• Establishment of specific regulations on access to genetic heritage. Participatory research with knowledge exchange;

• Definition and structuring of the benefit-sharing and safeguards system;

• Strengthening of the Amazonian identity, with the universalization of Amazonian knowledge, through the heritage education.

3. Productive chains and sustainable business

Established attractive investment environment, with strengthened and verticalized socio-biodiversity production and new business chains, generating local development, employment and income, and equitable distribution of benefits.

LINES OF ACTION

• Mapping and identification of production chains and new businesses in the Bioeconomy;

• Territorialization and promotion of the potential of the Bioeconomy production chains;

• Preparation of a regulatory framework to promote tax incentives for the production of the Bioeconomy;

• Development of pre-competitive arrangements to attract private investments;

• Strengthening the market and local business environment;

• Development of instruments and incentives for the generation of innovative technology for transforming biological resources into sustainable products and verticalization of production;

• Development of communication and marketing strategies and mechanisms for opening new markets.

2 | STRATEGIC AXES AND LINES OF ACTION

SPECIFIC GOALS

1. Research, Development and Innovation

Scientific and technological knowledge promoted and applied to the enhancement and innovation of the Bioeconomy, in an inclusive way and with integrated social, economic and environmental benefits.

LINES OF ACTION

• Identification and promotion of existing technologies for the development of the Bioeconomy;

• Prospecting and studies of the potential of new bioproducts and their several uses;

• Fostering innovation startups in bioproducts and biobusiness;

• Investment plan in R&D and implementation;

• Social and low impact technologies encouraged;

• Capability formation (exchanges, training courses, seminars and workshops).

2. Genetic heritage and associated traditional knowledge

Genetic heritage, acknowledged, protected and valued traditional knowledge and practices, integrated into the lowemissions socioeconomic development policy of the State of Pará, with guaranteed socio-environmental safeguards.

LINES OF ACTION

• Capability formation (exchanges, training courses, seminars and workshops);

to answer this scenario. Pará aims to redirect its socioeconomic development role through the construction of Bioeconomy State Strategy ruled on the principle of the solutions based on nature and on the State Policy of Climate Change and on the State Plan Amazon Now (from the original: Política Estadual de Mudanças Climáticas e no Plano Estadual Amazônia Agora [PEAA]), aiming at income development generating activities based on conceptual assumptions of bioeconomy. O PEAA is the commitment of the State of Pará with socioeconomic development of low carbon, which brings the change of the paradigm of production with the valorization of the forest economy and the promotion of sustainable production as contribution to the achievement of its ambitious climatic goals. The construction of a bioeconomy strategy to the State of Pará aims to establish strategic and programmatic foundationsfor redirecting socioeconomic development from the bioeconomy perspective, with the valorization of knowledge and of traditional systems of production allied to environmental conservation, fostering sustainable production chains and research, development and innovation to bioactives of the State of Pará. Migrating to a virtuous circle of development, able to address the socioeconomic and development questions to the almost 9 million inhabitants in Pará, keeping the forest safe.

Governor Helder Barbalho
Government of the State of Pará

1 | VISION AND STRATEGIC GOALS

VISION

To be a reference in the Amazon, Brazil and in the world as a Bioeconomy model, promoting greater credibility and security for socioeconomic development, maintaining the Amazon rainforest and positively transforming people's lives.

STRATEGIC GOALS

Establishment of strategic and programmatic bases for the reorientation of economic development from the perspective of the Bioeconomy, with the enhancement of knowledge and traditional production systems combined with environmental conservation, research and innovation for bioactives and strengthening of sustainable production chains in the State of Pará.

STATE BIOECONOMY
STRATEGY

PRESENTATION

The Government of the State of Pará has the national and international commitment, by means of low carbon policies, of ensuring the sustainable economic development, with the standing forest and traditional population rights. The challenge is to reduce the emissions of greenhouse gases and to generate clean development opportunities from regional Bioeconomy. As the second largest Amazon state, rich in biodiversity and traditional knowledge through positive political strategies, such as the "State Plan Amazon Now" (from the original: Plano Estadual Amazônia Agora [PEAA]) and the "State Policy of Climate Changes of Pará" (from the original: Política Estadual sobre Mudanças Climáticas do Pará [PEMC/PA]), has also constructed the Bioeconomy Strategy of Pará. This one oversees solutions of socio environmental and economic problems, based on the resources from nature, giving value to forest products, by means of science tools, technology and innovation (from the original: P, D & I). The sustainable and rational usage of forest systems will promote the maintenance of the natural storage of Amazon biodiversity and valorization of traditional peoples, dividing benefits with the society of Pará. Thus, the sentiments and the expectations of the society of Pará are within the Bioeconomy State Strategy, which will promote a fair development role, sustainable and inclusive, embracing new bio business and strategic enterprises in the sections of medicines, herbal, cosmetics, nutrients, energetics, food, oils, essences, beverage, fibre, biofuels, environmental services, etc. within the value given to Amazonian forest resources, strengthening and unifying the research along with the local economy, ensuring rights to the traditional peoples, and promoting the maintenance of the live forest, with the following deforestation reduction, greenhouse gases and the maintenance of the Amazon forest for future generations.

1 CHARACTERIZATION OF THE STATE OF **PARÁ IN THE CURRENT CONTEXT**

The implementation of this strategy will be developed converging with other policies in the state of Pará, through programs that will allow leveraging the appreciation of the regional differential, considering its local peculiarities, in order to respond to the demands of Bioeconomy. Municipal Department of Social Assistance (from the original, SEMAS - Secretaria Municipal de Assistência Social) will monitor the integrated development of actions, based on the monitoring of result indicators. The activities for the implementation of the State Bioeconomy Plan must be linked to the objectives and goals, being fed by the process of monitoring the performance and results of the State Policy on Climate Change (from the original, PEMC - Política Estadual de Mudanças Climáticas) and the State Plan Amazon Now (from the original, PEAA - Plano Estadual Amazônia Agora).

The construction of the Plan also predicts future public consultation, establishment of different organizational bodies, such as the Political Committee and the Executive Committee, and continuous monitoring, with governance of political spheres, to establish a dialogue with the global agenda regarding international agreements, as per example: Paris Agreement, Sustainable Development Goals (SDGs) and 2030 Agenda, Aichi Targets, Nagoya Protocol, among others.

4 | IMPLEMENTATION AND SUSTAINABILITY

Pará is the second largest state of Brazil, with territorial area of 1,245,870,707 km2 (IBGE[1], 2020), rich in socio biodiversity, harboring a vast cultural diversity, 39 indigenous peoples (ISA: 2018) and the second largest quilombola population of the country. In the state, predominates the equatorial hot and humid weather. Its exuberant tropical forest covers 9% of the tropical forests of the world, with reminiscing forest coverage of 86 million hectares (PRODES).
The conservation of natural storage of biodiversity in the state of Pará is saved by various protected areas, which represent 58% of the territory, with 72,288,206 hectares, when summed up with the Federal, State and Municipal Units of Conservation, Indigenous Lands and Collective Territories (quilombolas). Altogether are 83 Units of Conservation, in which 19 are state, embracing 16,94% of the total area of the state. Pará has the main role in the national economy, being the biggest exporter of the North Region and the 5º biggest national exporter. In 2020, even with the SARS-COV-2 pandemic, the exportations were growing.

Pará presented a positive balance in Gross Domestic Product (GNP) of 1,7% (2020) and generated in income a total of US$8,3 billion. The agricultural products exported by Pará are classical in Brazilian agribusiness, and also mineral and forest resources. The forest resources embrace unspecific products, live animals and fishing, and participate on exportation revenues with 31%, percentage close to the soy participation and its derivatives. According to the Secretary of the State of Agricultural and fishing Development, in 2019, led the national production of: pineapple (production of 311,947 thousand fruits), açaí (1,320,150 tons), cocoa (128,961 tons) and dendê (2,543,814 tons)[2]. The participation of the people from Pará in exportation of products considered from biodiversity is the most pungent among all the states of Amazon, with forty-four (44) products compatible with the forest.

[1] From the orginal: Instituto Brasileiro de Geografia e Estatísticas (Brazilian institute of geography and statistics)

The main destination countries of the Products of Pará are: China, Malaysia, Japan, Norway, Netherlands, Germany and South Korea. The main natural exported products are: cellulose, soy, wood, sugar, Pará nuts, cocoa, fish, orange, eggs, coffee, lobster, shrimp, meat, honey, açaí, etc. Thus, Pará is highlighted in the national and international market, due to its success in exportations, being considered as the dynamic economic frontier of Legal Amazon.

Besides, Pará is the most populous state of Amazon, with its population estimated in 8,8 million of people (IBGE, 2021) and its richness has not been divided in an equitative manner to its population, which has the Human Development Index - HDP of 0,646 (PNUD, 2010), occupying the ranking of 24º state in terms of HDP of Brazil and with 44% of the population under the poverty line, with the per capita monthly income around 883 reais (IBGE, 2010). Investing in education is the main change for social inequality. Taking the educational structures to the countryside is a priority, once a big part of the population of Pará resides in the forest and organize themselves as traditional, quilombolas and riverside communities, needing a different educational system which values these peoples' abilities. The offer of logistics suitable to the integration of the countryside with urban centers of Pará is also necessary, the transportation of natural inputs from associations, cooperatives and local entities will create a dynamic between the exchange of knowledge and the distribution of the products from the local bioeconomy. The infrastructure of production also needs to be improved to optimize the production inside the forest, avoiding contamination and waste. Because of that, there is an enormous political effort in Pará to regulate and to organize the markets and the base forest economy, incentivizing research, development and innovation from the agroforestry inputs of the territory. Approximating the universities to agroextractivist companies, diversifying the productive chains of biodiversity resources, promoting a circular low carbon economy with waste recovery is a priority of this strategy.

The growth of the strategic market of Pará currently impacts negatively in the maintenance of the forest, being responsible for 45% of deforestation in Brazil. The water resources are also susceptible to suffer impacts by the transposition of the Tocantins River and by the increasing deforestation activity, with the degradation of riparian forests and the accumulation of toxic substances[3].

[2] http://sedap.pa.gov.br/dados-agropecuarios/agropecuaria
[3] http://www.fapespa.pa.gov.br/produto/relatorios/251?&mes=&ano=2019

3.7.10. Improvement of Sociobidiversity Productive Chains;

3.7.11. Implementing a low carbon circular economy;

3.7.12. Development of human capacities with S&T for innovation in Pará;

3.7.13. Biotechnology development;

3.7.14. Establishment of good agro-extractive and industrial production practices for Bioeconomy.

3.6.5. Adding value, increasing sales and expanding markets and credits aimed at the Bioeconomy;

3.6.6. Rescue and dissemination of traditional Amazonian knowledge;

3.6.7. Development of research and innovation applied to the improvement of Bioeconomy production chains, with benefit sharing for socio-biodiversity of Pará.

3.7. | PURSUED IMPACTS OF THE STRATEGY

3.7.1. Construction of the Base for the Bioeconomy Plan;

3.7.2. Conservation of Amazon Biodiversity of Pará;

3.7.3. Deforestation reduction / Reduction of greenhouse gases (GHGs) / Climate neutrality;

3.7.4. Guarantee of Food Security for traditional and local communities;

3.7.5. Improved quality of life;

3.7.6. Increased employment and income;

3.7.7. Guaranteeing the rights of local populations;

3.7.8. Social and environmental integrity;

3.7.9. Diversification of Amazonian forest-based bioproducts and environmental services;

2 THE CONSONANCE BETWEEN THE PUBLIC POLICIES OF PARÁ **AND THE ENVIRONMENTAL GLOBAL AGENDA**

3.5.7. Creation of attractive investment environments for production chains and new socio-biodiversity businessesAmazon, strengthened and verticalized, generating local development, employment, income, training and distribution of benefits;

3.5.8. Mapping, territorialization and promotion of the potential of production chains and new businesses in theBioeconomy, for the development of pre-competitive arrangements, with the attraction of private investments;

3.5.9. Elaboration of a regulatory framework to promote tax incentives for the production of the Bioeconomy and the generation of innovative technologies for transforming biological resources into sustainable products.

3.6. EXPECTED RESULTS AND IMPACTS

3.6.1. Bioeconomy Plan implemented;

3.6.2. Expansion of the State's forest area;

3.6.3. Expansion of agroforestry and regenerative production systems;

3.6.4. Increase and diversification of the Bioeconomy's productive matrix;

3.5. STRATEGIC GOALS

3.5.1. Implementation of the State Bioeconomy Plan;

3.5.2. Expansion of investments in prospecting research in bio-products production chains, fostering innovation startups to take advantage of scientific and technological knowledge applied to biobusinesses of Pará;

3.5.3. Implementation of the R&D Investment Plan, with an emphasis on social and low-impact technologies and capacity building (exchanges, training courses, seminars and workshops), in order to value and innovate the Pará Bioeconomy, integrating social, economic and environmental benefits to the urban and forest population;

3.5.4. Elaboration of communication and marketing strategies and mechanisms to publicize the new markets of the Bioeconomy, with the strengthening of the Amazonian identity internationally;

3.5.5. Identification, through participatory research about the acknowledge of traditional practices that integrate the lowemissions socioeconomic development policy of the State of Pará, in order to protect, disseminate and enhance them, with socio-environmental safeguards guaranteed to associated genetic heritage and traditional knowledge for sustainability;

3.5.6. Establishment in the medium term, of specific regulation on access to the genetic heritage of Pará, in order to add value to the economic use of this heritage and the traditional knowledge and practices associated with it, and to structure a fair and equitable benefit and safeguards sharing system;

Brazil is the main key in the weather and biodiversity global agenda, and in this context, Amazon is the password in any geopolitical dialogue. The end of illegal deforestation and the insurance of the rights of the indigenous and traditional peoples, through public policies are determining factors for the realignment of Brazilian credibility in the contemporary world. Besides the combat against environmental crime in the Amazon, that realignment means dealing with the necessary changes for promoting advances in the low carbon economies[4]. The State Plan Amazon Now (from the original, PEAA) is the main platform of actions from Pará for the sustained reduction of deforestation and it presents a strategical, long-term vision aiming at promoting the reduction of, at least 37% of the emissions of greenhouse gases (from the original, GEE) generated by the conversion of the usage of forests and land, until 2030 - in relation to the rate between the years of 2014 and 2018, from this moment it is expected an increase in that performance to 43% of the reduction until December of 2035. In the same manner it is desired to progressively reduce deforestation, it is also intensified the regeneration of vegetation in 5.65 million hectares until 2030. To face the climate and environmental challenges, it has been created the State Policy of Climate Change (from the original, PEMC/PA), making possible a new perspective on social and economic development in the State, based on the sustainable usage of natural resources. Another instrument is the Program for Sustainable Territories (from the original: Programa Territórios Sustentáveis), established by State Decree No. 344/2019, at operational level is a contribution of Pará to the global agenda of sustainable development, especially the Goals of the 2030 Agenda (DS) and the NDCs (from the original) of Brazil in the Panel- Convention of the United Nations about Climate Changes (from the original: Convenção-Quadro das Nações Unidas sobre Mudanças Climáticas [UNFCCC]). Such pogram is the main exponent of the Axis of Low Emission Development of PEAA (from the original: Eixo de Desenvolvimento de Baixas Emissões do PEAA), and aims at increasing the productivity per hectare in open areas - thus avoiding advances into areas of native forest and/or process of natural regeneration - and at generating occupation, income and opportunities for family and individual development, through the implementation of a diversified and productive matrix, based on paradigms that privilege Bioeconomy, with the capacity for value aggregation and aligned with plicies for good production. Those elements may take the biobusiness of Pará to new environments of productive financing and, especially, to new markets, nationally or otherwise.

[4] valor.globo.com/opiniao/coluna/geopolitica-da-sustentabilidade-e-as-negociacoes-brasil-eua.ghtml

3 | THE STRATEGY OF **BIOECONOMY**

3.4. | GUIDELINES OF THE BIOECONOMY STRATEGY

3.4.1. Creation and/or modernization of competitive and dynamic environments;

3.4.2. Establishment of public financing and attraction of private investments (credit offer, risk capital for all links in the bioeconomy production chain, including extractivists and other local populations), increasing competitiveness and innovations;

3.4.3. Implementation of communication and marketing strategies and mechanisms to add value and strengthen the Amazon brand, which contribute to the creation of new markets;

3.4.4. Establishment of incentive instruments for the generation of innovative technologies for transforming biological resources into technological and sustainable products, with added value, non-fiscal incentives to these products and certifications (geographic indication and inclusion of sustainability criteria in public purchases, etc.);

3.4.5. Establishment of regulatory aspects (legislation of access to genetic heritage);

3.4.6. Implementation of mechanisms to facilitate the import of inputs for research and development and for the export of Brazilian Bioeconomy products;

3.4.7. Establishment of convergent public policies that promote Bioeconomy;

3.4.8. Establishment of valuation methodologies for Bioeconomy products;

3.4.9. Establishment of articulation between local communities and the productive sector (market), regulated by the state (government);

3.3.2. SPECIFIC GOALS

AXLE	SPECIFIC GOAL
RESEARCH, DEVELOPMENT AND INNOVATION	**3.3.2.1.** To promote and apply scientific knowledge and technological research to value and produce innovations, in an inclusive way and with integrated social, economic and environmental benefits; **3.3.2.2.** To identify and map the knowledge about Pará's Bioeconomy, contained in the several research institutions of the State, in order to encourage applied research, and transform it into new technologies, training, and tools capable of guaranteeing the improvement of local production;
GENETIC HERITAGE & ASSOCIATED TRADITIONAL KNOWLEDGE (from the original, CTA CONHECIMENTO TRADICIONAL ASSOCIADO)	**3.3.2.3.** Recognize traditional practices, protect them and value them, integrating them into the low-emissions socioeconomic development policy of the State of Pará, with socio-environmental safeguards and guarantees for the genetic heritage associated with traditional knowledge and biodiversity; **3.3.2.4.** Guarantee the rights of local populations, provide opportunities for sustainable development alternatives, training and socio-environmental integrity;
PRODUCTIVE CHAINS AND SUSTAINABLE BUSINESS	**3.3.2.5.** Valuing the bioproducts of the territory's Biodiversity, in order to add region specificities to local products, through certifications, protection to cultivars, geographic identification, among other strategies; **3.3.2.6.** Invest in the establishment of environments of investments that are attractive to production chains and to new socio-bidiversity businesses, strengthening and verticalizing production, generating local development, employment and income, and equitable distribution of benefits.

The Government of Pará plays a vital role in the coordination of efforts for the intelligent and responsible usage of the Amazon biodiversity. With support from the private sector, it aims at: promoting the increase of investments in the formation of human capabilities in science and technology (from the original: C&T); innovating within the productive and business environments in bioeconomy; and sharing resources in an equitative manner with its population. Bioeconomy is an opportunity for social and economic rescue for the Amazon, with the objective of ensuring sustainable patterns in a long-term scope. The creation of a virtuous cycle of development will contribute decisively to the improvement of life conditions, increase in the state Gross Domestic Product, with the definite passage of the North Region to the Society of Knowledge (from the original: Sociedade do Conhecimento) in the 21st century.

That initiative is necessary to accommodate development with adequate management of natural resources, which is a great challenge and demands efficiency in the actions of combat against illegal deforestation and in the adoption of public policies that foment more sustainable economic alternatives for the Amazon and for the Planet. In that manner, stimulating the economy through the natural capital present in the forest, through bioeconomy, is an efficient way of promoting a scenario of fair development and vocationated in the regional qualities, sharing benefits with the local community. Bioeconomy s a concept that is not well established yet and has multiple definitions, such as: (1) it may be a bioeconomy based on the production of forest extractivism; or (2) a bioeconomy dedicated to technological solutions; and still, (3) around bioeconomy of energetic reuse and low environmental impact, among other definitions. It is important to note that there is a tendency for broadening the scope of bioeconomy to encompass the perspective that it is not only about productive activities by the sustainable usage of biological resources but also about a new economy that is able to increase the efficiency of the usage of natural resources, including social technologies, influences on the countryside, environmental services and ecotourism. Sustainability encompasses the social, environmental and economic dimensions in the same proportions. It is not only about obtaining new produc s through innovative biotechnologies, but about the good usage of knowledge and technology to promote bigger efficiency in the production, with smaller usage of natural resources, less environmental impact (reduction in the emission of CO2 or bigger retention of carbon),

bigger social impact (maintaining communities in the countryside, generating appreciation for the culture and products of traditional communities, sharing benefits) and, not less important, bigger economic impact (creation of income and job positions). Thus, bioeconomy bears the potential for uniting the basis for the promotion of a healthy and balanced environment, with the creation of job opportunities, income (in special, that of youngsters and women), besides allowing for new alternatives of economic development, strengthening the economy, representing a rupture in the paradigm of economic development for the Brazilian North Regions, and ensuring environmental preservation. The challenge in the paradigm shift to a new model of economic development, in a long-term perspective, means reducing the emission of greenhouse gases, through the usage of natural resources obtained with renewable sources, demanded by public policies, in a modern regulatory framework that emphasizes the investments on strategical research capable of improving the production of: food, fibers, energy, medicine, physiotherapeutic medicine, cosmetics, nutrients, essences, energetics, oils, beverages, biofuels, environmental services, among others. The whole process also focuses on the recycling of waste and on the human and social development of Pará. It is known that in the

3.2. | PERSPECTIVE OF THE STRATEGY

3.2.1. Pará is to be a reference in the Amazon, in Brazil, and in the world as a model of bioeconomy, with the promotion of greater credibility and security for socioeconomic development, safeguarding the tropical Amazon rainforest and positively transforming the lives of people, especially that of the inhabitants of the forest;

3.2.2. Pará is to be a reference in the Amazon, in Brazil and in the world in low carbon socioeconomic development,through the sustainable usage of the natural resources, valuing of local bioproducts and the associated traditional knowledge, for the promotion of quality of life for the population and contribution to reach climate neutrality in the State;

3.2.3. Pará is to be a reference in the Amazon and in Brazil as a state that preserves, values and maintains the culture, knowledge, and traditions of the traditional peoples of the Amazon, sharing benefits through the development of the Bioeconomy in a sustainable manner.

3.3. | GOALS OF BIOECONOMY STRATEGY

3.3.1. GENERAL GOAL

Establishing the programmatic and strategic base of the State Plan of Bioeconomy of Pará for redirecting socioeconomic development under the perspective of bioeconomy based on the solutions guided by nature, with the valorization of knowledge and traditional production systems, allied to the environmental preservation, to research and to innovation for the bioactives production and strengthening of sustainable productive chains and of low carbon.

3.1. PRINCIPLES OF THE STRATEGY OF BIOECONOMY

3.1.1. Mitigating the effects of climate change and extreme climate risks;

3.1.2. Avoiding the degradation of ecosystems that possess high forest carbon stock and/or biodiversity value, whilst aiming at restoring those which have already been degraded, through regenerative and sustainable means, with the end of promoting the conservation of biodiversity;

3.1.3. Promoting the involvement of the indigenous peoples, quilombolas, local traditional communities, with the goal of reducing social injustice and inequality and valuing multiple cultural aspects;

3.1.4. Developing a broad perspective which contemplates, besides sustainable production and climate resilience, actions related to green infrastructure, generation of employment and potency for low carbon economic growth due to the necessity of recovery after Sars-coV-2 (COVID-19);

3.1.5. Promoting the development of science and technology to increase the sustainable usage of the resources from the biodiversity and innovation in the state of Pará;

3.1.6. Promoting the exchanging of experiences, sharing of knowledge and information among the agents, aiming at decentralizing the information and public policies from the urban centers and moving them towards the countryside;

3.1.7. Transforming the natural riches of the forests and their biodiversity into subsidies for the improvement of the local human development;

3.1.8. Valuing family agriculture and promoting Technical Assistance and Rural Extension (from the original: Assistência Técnica e Extensão Rural [ATER]) of quality in the countryside, with a sustainable scale of bioproducts.

Amazon there is abundance and variety of natural and renewable, available and unused resources, in terms of genetic patrimony, and that potential is an opportunity for investments when associated to scientific and technological knowledge, mobilized by social environmental concern and sustainable production by bioindustries of biobusiness, with the minimum impact of waste possible.
Taking into consideration the necessity for new molecules for the chemical and pharmaceutical industries and the diversification of nutrients for the planet as well, the Amazon represents one of the richest natural patrimonies of the globe, with a gigantic and yet unexplored economic potential and whose waste implies on an unmeasurable loss of potentially promising alternatives of innovative bioproducts for the development of the country and of global science. Analysing the current situation, characterized by environmental destruction and violence against indigenous peoples and local communities, scientists shed light on the necessity of investments on the Amazon. The incentive should elevate the level of human development, expand the sustainable usage of biodiversity, invest in infrastructure which answers the economic demands to improve the lives of those who live in the region, in such a way as to disseminate scientific and technological knowledge about the existing social bio-

diversity, and in a long-term range, transform Pará into the center of regional development. Scientists[5] are severe about the urgent necessity of changing the political and economic investments to the Amazon in favor of a bioeconomy based on the regional biodiversity. From the database of the Agricultural Census by IBGE (from the original) it has been identified that 74% of the national, non-exhaustive activities for extractivism (seeds, leaves, fruits, oils, without the tearing down of trees) are located in the Amazon. Between January of 2017 and December of 2019, the companies from Amazon have exported 955 different products, at least 64 can be considered "compatible with the forest", including products of agroforestry systems, horticulture, non-timber forest, and obtained through fishing and pisciculture. Seizing the potential of the tropical forests, keeping them standing, in an innovative and sustainable manner is an intelligent and possible strategy to preserve the native species for the future generations, regenerate the forest, and to promote an engine of economic growth. Each bioproduct may create new scientific and technological investments on forest resources from Pará and generate various derived by-products and innovations, with established productive chains and constant scale of production for different markets, which is already the case of the production from Pará of the following natural resources: açaí, pineapple, banana, cocoa, coconut, cupuaçu, dendê, Brazil nuts, caupi beans. Another opportunity is the environmental service that may be associated with these productive chains. The agricultural economy from Pará may also continue to grow in an expansion role, which is more technological than territorial, aiming at contributing as well for the environmental sustainability and seizing the local potentialities that have been previously established. The bioeconomy, for the Amazon, may be an innovative pattern in the usage of low carbon technologies and knowledge, in the reconstitution of traditional forest systems of production, strengthening them and aggregating value to its derivatives, and also sharing benefits with the society from Pará. However, for the construction of the State Plan of Bioeconomy, it will be important to observe the following points: Economic-Ecological Zoning (from the original: Zoneamento Ecológico-Econômico); forest conservation and valorization ofenvironmental actives through the Strategy for the Reduction of Emissions due to Deforestation and Degradation (from the original: Estratégia de Redução de Emissões por Desmatamento e Degradação [REDD+]) and payments for environmental services (from the original: PSA); strengthening of

the management of public forests and of territorial governing; consolidation of the environmental and land regularization for the juridical security in the establishment of the business environments of Bioeconomy; establishment of appropriate infrastructure and logistics for the flow of the production of the biodiversity resources; mapping and understanding of the productive and value chains in biobusiness; reuse of solid waste; and implementation of new strategies for the supply of energy and hydro inputs. In this way and based on this strategy, the State Plan of Bioeconomy will be built on a logical structure of goals, guidelines, results and expected impacts.

[5]The new bioeconomy in the Amazon: Opportunities and challenges for a healthy standing forest and flowing rivers. Ricardo Abramovay, Joice Ferreira, Francisco de Assis Costa, Marco Ehrlich, Ana Margarida Castro Euler, Carlos Eduardo F. Young, David Kaimowitz, Paulo Moutinho, Ismael Nobre, Herve Rogez, Eduardo Roxo, Tatiana Schor, Luciana Villanova