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Rural electrification and socioeconomic development: an analysis of the "Luz Para Todos" Program in Quilombo do Pacoval, in the municipality of Alenquer, Pará, Brazil (2010-2022)

Eletrificação rural e desenvolvimento socioeconômico: uma análise do Programa "Luz Para Todos" no Quilombo do Pacoval, no município de Alenquer, Pará, Brasil (2010-2022)

Electrificación rural y desarrollo socioeconómico: un análisis del Programa "Luz Para Todos" en Quilombo do Pacoval, del municipio de Alenquer, Pará, Brasil (2010-2022)

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KEYWORDS
Electrification.
Development.
Light for All Program.

Abstract: The objective of this research is to understand the socioeconomic development generated after the implementation of the Luz Para Todos Program (PLPT) in Quilombo do Pacoval, in the municipality of Alenquer-Pará. The said quilombo is made up of approximately 420 families residing in an area of 7,472,879 hectares. In this community, access to electricity is closely linked to the process of social and economic development of traditional populations, as historically there has been a huge deficit of public policies in the locality. Electrification is directly linked to fundamental rights, given that it enables the improvement of public and private services, internet access, food packaging, in addition to encouraging economic activities and being a source of income for families. To better qualify the understanding of this process, interviews were carried out with the

community members, in order to capture their perceptions, in addition to extensive documentary research and analysis of government reports on the implementation and development of the PLPT.

PALAVRAS-CHAVE
Eletrificação.
Desenvolvimento.
Programa Luz Para Todos.

Resumo: *O objetivo desta pesquisa é compreender o desenvolvimento socioeconômico gerado após a implementação do Programa Luz Para Todos (PLPT) no Quilombo do Pacoval, município de Alenquer-Pará. O referido quilombo é constituído por aproximadamente 420 famílias que residem numa área de 7.472,879 hectares. Nesta comunidade, o acesso à energia elétrica está estreitamente ligado ao processo de desenvolvimento social e econômico das populações tradicionais, pois historicamente se observa um enorme déficit de políticas públicas na localidade. A eletrificação está diretamente ligada aos direitos fundamentais, tendo em vista que possibilita a melhoria de serviços públicos e privados, acesso à internet, acondicionamento de alimentos, além incentivar atividades econômicas e ser fonte de renda para as famílias. Para melhor qualificar a compreensão desse processo, foram realizadas entrevistas com os comunitários, a fim de captar suas percepções, além de extensa pesquisa documental e análise de relatórios governamentais sobre a implementação e desenvolvimento do PLPT.*

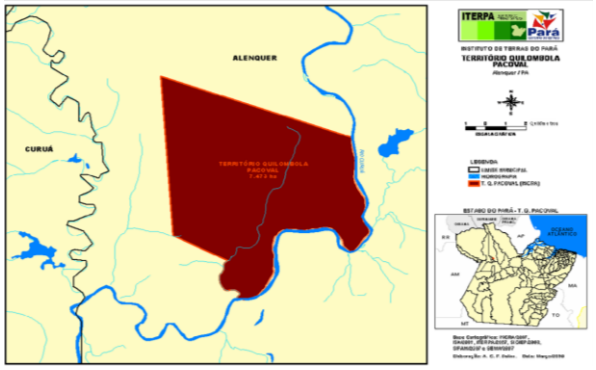
PALABRAS CLAVE
Electrificación.
Desarrollo.
Programa Luz Para Todos.

Resumen: *El objetivo de esta investigación es comprender el desarrollo socioeconómico generado después de la implementación del Programa Luz Para Todos (PLPT) en Quilombo do Pacoval, en el municipio de Alenquer-Pará. Dicho quilombo está conformado por aproximadamente 420 familias que residen en un área de 7.472.879 hectáreas. En esta comunidad, el acceso a la energía eléctrica está íntimamente ligado al proceso de desarrollo social y económico de las poblaciones tradicionales, ya que históricamente ha existido un enorme déficit de políticas públicas en la localidad. La electrificación está directamente ligada a los derechos fundamentales, ya que permite mejorar los servicios públicos y privados, el acceso a internet, el envasado de alimentos, además de incentivar las actividades económicas y ser una fuente de ingresos para las familias. Para matizar mejor la comprensión de este proceso, se realizaron entrevistas a los comuneros, con el fin de captar sus percepciones, además de una extensa investigación documental y análisis de informes gubernamentales sobre la implementación y desarrollo del PLPT.*

Introdução

The objective of this research is to understand the socioeconomic development generated after the implementation of the Luz Para Todos Program (PLPT) in Quilombo do Pacoval, municipality of Alenquer Pará (Figure 1). Since the Luz Para Todos Program is focused on expanding the electricity grid in rural areas, efforts to fully implement it have a positive impact on the social and economic development process of the regions and communities.

Figure 1
Map of quilombo do Pacoval



Source: ITERPA (2022)

Within the context presented, this research addresses the theme of the relationship between electrification and socioeconomic development in a quilombola population in the municipality of Alenquer - Pará. For this purpose, the Quilombo do Pacoval was chosen, which has had electricity since 2010.

According to Sousa, Ribeiro, Souza and Azeredo (2021), Quilombo do Pacoval is a rural black community remaining from the mocambos, which is located on the banks of the Curuá River, in the municipality of Alenquer-Pará, the quilombo is made up of approximately 420 families residing in an area of 7,472.8790 hectares. It is worth noting that it has the title of recognition of domain, granted by the National Institute of Colonization and Agrarian Reform (INCRA) and legitimized by the Palmares Cultural Foundation on November 20, 1996.

The study was based on three fundamental concepts, namely: rural electrification, quilombola communities and socioeconomic development. According to Sachs (2004), development, in its entirety, is considered to include five dimensions or categories: social, economic, environmental, spatial and cultural.

In Brazil, according to information from the 2010 Census (IBGE, 2011) on services provided to households, electricity was the service that had the greatest coverage (97.8%), mainly in urban areas (99.1%), but also with a strong presence in rural areas (89.7%). Even so, there are cases such as the North Region, where only 61.5% of households in rural areas are served by electricity distribution companies.

The motivation for carrying out this research lies in understanding how the Luz para Todos Program was implemented and what impacts it generated in Quilombo do Pacoval in the municipality of Alenquer-Pará, from 2010 to 2022. As well as, evaluating the impacts that electrification generated in Quilombo and also evaluating the effectiveness of PLPT. Because, taking into account the purpose and dimensions of the Program, there is no doubt as to its relevance as a public policy for social inclusion. Thus, according to IIASA (2012), having adequate and accessible energy is a necessary prerequisite for eradicating poverty, improving human well-being, and raising global living standards.

The lack of electricity makes it impossible for the population to access various basic social services, such as water, sanitation, education and communication. From this perspective, it can be seen that there is a close relationship between electrification indicators and the degree of modernization of rural areas, resulting in the quality of life of the rural population.

Therefore, the guiding questions for this research are: How has the arrival of electrification, specifically the Luz para Todos Program, affected the lives of the residents of the Pacoval quilombo? Are the impacts of electrification perceived as positive or negative by the population of Pacoval? Is the energy quality good? Therefore, the research hypothesis is that rural electrification allows for

the improvement of the living conditions of communities, as long as it is linked to their cultural, social, economic, environmental and spatial specificities.

The research is structured in five distinct parts. The introduction outlines the scope and objectives of the study, establishing the context for subsequent analysis. This is followed by the theoretical framework, which provides the conceptual and analytical basis necessary to interpret the collected data. The methodology details the procedures adopted for data collection and analysis, ensuring the replicability of the study. The results are then presented and discussed, revealing the practical and theoretical implications of the findings. Finally, the concluding remarks summarize the main points of the study, reflecting on its limitations and proposing directions for future research. The references cited throughout the text provide academic support for the research carried out.

Theorical elements of the research

Public policies and quilombola populations

Public policies are actions and programs developed by the State to ensure and enforce the rights provided for in the 1988 Federal Constitution and other laws for the entire society, regardless of education, sex, race, religion or social status. They are measures and programs developed by governments in order to guarantee the well-being of the entire population.

In addition to these rights already provided for, others that are not included in the Law may be ensured through public policies. This may occur with rights that, over time, are recognized as a need of society. Thus, the planning, creation and implementation of these policies are done through joint work between the Executive, Legislative and Judicial Branches.

Public policies aim to guide deliberations in the public sphere, aiming to ensure social balance and transform realities that require intervention. However, this procedure for establishing a public policy permeates several objectives and interests of groups involved in this process. Therefore, a public policy aims, first, to identify the problem to be discussed and then to formulate a policy to reduce this problem.

According to Capella (2007), this policy will need to be centered on a reality that exposes the inequality between a current situation, comparing it with an ideal situation with regard to an identified problem, which would consequently result in public intervention.

According to Carvalho and França (2017), quilombola communities are integral parts of a social program called Brasil Quilombola, launched on March 12, 2004, which discusses public policies designed by the State for quilombola peoples. These actions are divided into areas that encompass four axes. However, it is axis 2 that includes actions aimed at the infrastructure and quality of life of quilombola communities, which encompasses the objectives of effective tools for basic sanitation, housing, communication, electrification, social equipment, aiming to meet the health, education and social assistance needs of residents.

Public policies affect the lives of all citizens and with the implementation and expansion of democracy, the obligations of popular representatives have diversified. As they are programs linked to rights that are guaranteed to society, public policies exist in many areas, such as: education, health, work, leisure, social assistance, environment, culture, housing and transportation.

According to Echeverry (2014), the benefits of public electrification policies go far beyond lighting and daily comfort. It is a dream for many quilombola communities, since energy can make a difference in their lives, promoting a feeling of social inclusion, hope in new perspectives and paths in rural areas, certain that it can minimize migration to cities in search of better living conditions.

According to Silva (2016), a public policy can affect the lives of many people and social groups. Thus, the rural electrification programs that have existed in Brazil since the 1970s are considered

public policies, taking into account that their purpose is to bring a social good to the lives of people who were isolated from electricity in the country.

As stated by Bandeira (2022, p. 155-156),

> The 1988 Federal Constitution, in article 68 of the Constitutional and Transitory Acts and Provisions (ADCT), recognized a fundamentally important right for the remaining quilombo communities, stating that "the definitive ownership of the remaining quilombo communities that are occupying their lands is recognized, and the State must issue them the respective titles".

According to the National Institute of Colonization and Agrarian Reform (INCRA, 2012), the regularization of a quilombola area is a process that has as a preliminary phase the self-identification of the community and the subsequent issuance of a certificate of this definition by the Palmares Cultural Foundation (PCF). It is the obligation of the community that is interested to send to the Regional Superintendence of INCRA a request for the opening of administrative mechanisms with the aim of regularizing their areas. Thus, the community must present the Certificate of Registration in the General Registry of Remnants of Quilombo Communities, issued by the PCF

The titling of a quilombola territory is of fundamental importance in guaranteeing the rights of these peoples. Therefore, in agreement with Marinho (2011), the recognition of a territory favors the creation of public policies that benefit the remaining quilombola communities with the aim of correcting historical problems and failures in all areas.

The electrification process is subject to aspects such as the title and/or certification of the quilombola communities and full access to the place, such as roads. The Pacoval quilombo received its title of recognition of domain on November 20, 1996. According to the INCRA website, the Pacoval Quilombo located in the municipality of Alenquer was one of the first Brazilian quilombos to receive title.

Figure 2

Domain Recognition Title


GABINETE DO MINISTRO EXTRAORDINÁRIO DE POLÍTICA FUNDIÁRIA
INSTITUTO NACIONAL DE COLONIZAÇÃO E REFORMA AGRÁRIA - INCRA

TÍTULO DE RECONHECIMENTO DE DOMÍNIO/INCRA/Nº 001/96

TÍTULO DE RECONHECIMENTO DE DOMÍNIO que a UNIÃO e o INSTITUTO NACIONAL DE COLONIZAÇÃO E REFORMA AGRÁRIA - INCRA outorgam à ASSOCIAÇÃO DA COMUNIDADE REMANESCENTE DE QUILOMBO PACOVAL DE ALENQUER - ACONQUIPAL/PA.

A UNIÃO, representada pelo Excelentíssimo Senhor Presidente da República, FERNANDO HENRIQUE CARDOSO, brasileiro, casado, sociólogo, CI nº 1.254.309 SSP/SP e CPF nº 002.446.020-20, e pelo Excelentíssimo Senhor Ministro Extraordinário de Política Fundiária, RAUL BELENS JUNGMANN PINTO, brasileiro, solteiro, servidor público, CI nº 904.007/SSP/PE e CPF nº 244.443.224-00, e o INSTITUTO NACIONAL DE COLONIZAÇÃO E REFORMA AGRÁRIA - INCRA, autarquia federal criada pelo Decreto-lei nº 1.110, de 9 de julho de 1970, alterado pela Lei nº 7.231, de 23 de outubro de 1984, cuja estrutura regimental foi regulamentada pelo Decreto nº 908, de 27 de outubro de 1993, CGC nº 00375972/0001-00, neste ato representada pelo seu Presidente, NESTOR FETTER, brasileiro, casado, bancário, CI nº 2094648805-7/SPRS, CPF nº 011.056.390-53, residente nesta Capital, designado pelo Decreto de 6 de novembro de 1996, publicado no DOU, de 7 do mesmo mês e ano e de acordo com as atribuições que lhe são conferidas pelo artigo 24 do Regimento Interno da Autarquia, aprovado pela Portaria/Nº 612, de 10 de dezembro de 1993, publicada no DOU, de 20 do mesmo mês e ano, doravante simplesmente denominados OUTORGANTES, com fundamento no art. 68 do Ato das Disposições Constitucionais Transitórias e no art. 6º da Lei nº 4.947, de 06 de abril de 1966, e, considerando o que consta do Processo Administrativo/INCRA/UA SANTARÉM/PA/Nº 21411.000053/96-11, pelo presente TÍTULO DE RECONHECIMENTO DE DOMÍNIO, com plena força e validade de escritura pública, a teor do art. 7º do Decreto-lei nº 2.375, de 24 de novembro de 1987, publicado no Diário Oficial da União, de 25 do mesmo mês e ano, reconhecem o domínio da ASSOCIAÇÃO COMUNITÁRIA DE NEGROS DO QUILOMBO

Source: INCRA (2022)

Light for all Program

Decree Law No. 4,873, of November 11, 2003, instituted the "Light for All" Program - PLPT, which aims to provide electricity to the portion of the Brazilian population located in rural areas that does not yet have access to this type of service. According to Cavalcanti (2015), the guarantee of social rights related to education, health, work, housing, leisure, security, social security, among others brought by the Federal Constitution of 1988 (CF/88), as a basis for the materialization of a dignified life, is intrinsically related to access to other public goods and services. Among these public services created by the State in fulfillment of its role, access to electricity is included as indispensable to man today, considered an input for meeting the individual's fundamental needs.

According to Pereira (2011), the establishment of public policies seeking to eradicate poverty must include expanding access to energy, particularly electricity, considering mainly its social interrelations. As part of the Millennium Development Goals, the United Nations explicitly recognizes that access to energy services is a key element for sustainable development.

In this regard, the aforementioned Program plays an important social and economic role, as it increases the well-being of the rural population through access to different durable consumer

goods that use electrical energy, encourages trade and the provision of services related to the electrical sector; as well as the generation of new direct and indirect jobs; and also increases rural people's access to the flow of information through the use of television, radio and computers.

According to Eletrobrás (2013, p. 3):

> In addition to providing electricity to the rural population, the Program offers solutions for its use as a vector for social and economic development in low-income communities, contributing to poverty reduction and increased family income. Access to electricity facilitates integration into the social services of the Federal Government.

The PLPT was launched in November 2003, with the aim of ending the great electrical exclusion that exists in Brazil (GOVERNMENT SECRETARY, 2017). The goal of the program was to bring free electricity to approximately two million people living in rural areas by 2008, having been revised and expanded until 2022. This program is coordinated by the Ministry of Mines and Energy, with the participation of Eletrobrás.

The Program was conceived as an instrument for development and social inclusion, since, according to the Census of the Brazilian Institute of Geography and Statistics (IBGE), in 2000 there were two million rural households without access to Electricity Services. In other words, approximately ten million Brazilians lived in rural areas without access to this Public Service, and around 90% of these families had an income of less than three minimum wages.

In its First Stage, the Program aimed to bring electricity to those rural households identified by the IBGE by 2008. However, during the Program's implementation, new families were found without electricity in their homes, which resulted in the issuance of Decree No. 6,442 of April 25, 2008, thus expanding the objectives on the path to eradicating electricity exclusion and extending the initial deadline until the end of 2010.

Subsequently, through Decree No. 7,324, of October 5, 2010, the Federal Government ensured the extension of the deadline for the Execution of Connections intended for the provision of electrical energy, until December 31, 2011, solely with the objective of guaranteeing the completion of the Contracted Works or those that were in the Contracting Process until October 30, 2010.

According to the Ministry of Mines and Energy, as of November 2016, approximately 3,323,683 families had benefited from the Luz Para Todos Program, which corresponds to 15.9 million rural residents (BRASIL, 2017). The initial target for the program was 10 million, which was reached in May 2009. Up until 2015, the federal government had spent R$22.7 billion on works under the Luz para Todos Program, of which R$16.8 billion came from the federal government and the remainder came from state governments and energy distributors (BRASIL, 2017).

Despite the significant results observed in the Execution of the Established Goals, new demands arose, mostly located in the North and Northeast Regions of the Country, which already had the highest rates of electrical exclusion at the time of the launch of the Program in 2003. In addition to the logistical difficulties for the Execution of the Works, the aforementioned Regions concentrate, among others, a significant portion of the population covered by the Brazil Without Poverty Plan, the Citizenship Territories Program and Social Minorities, such as: Quilombolas, Indigenous Peoples and Communities located in Extractive Reserves and in Areas of Electric Sector Projects, whose responsibility is not defined for the Project Executor.

Data from Brazil (2017) indicate that the program's works created around 498 thousand jobs and 1.2 million transformers were used in its works; 8.3 million posts, of which 68 thousand were developed with new technology that makes them lighter, favoring transportation through rivers in the Amazon Region; 1.6 million kilometers of electrical cables, of which 121 thousand meters were underwater cables used to cross rivers and even at sea.

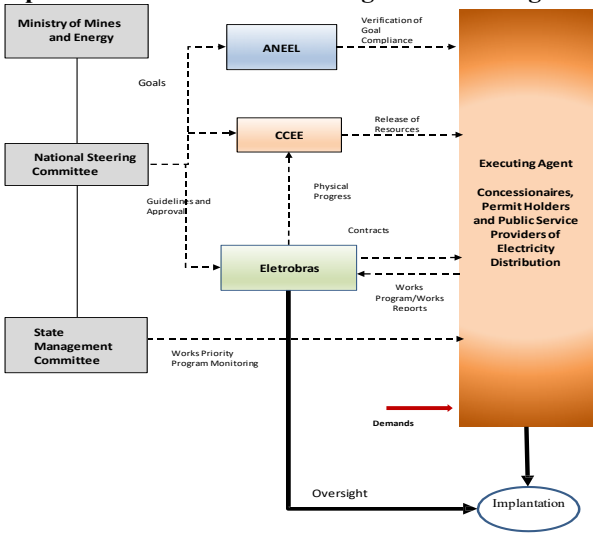
According to Decree No. 11,111, of June 29, 2022, the Luz para Todos Program will be extended until 2026 and the Mais Luz para a

Amazônia Program until 2030. Previously, the programs for universalizing access and use of electricity were scheduled to end at the end of 2022. This measure makes it possible to use resources from the Energy Development Account (CDE) to provide the expansion of electricity services to more remote locations in the national territory.

According to data taken from the website of Equatorial Energia, the concessionaire responsible for electrification in the state of Pará, since the creation of the Luz Para Todos Program in 2003, around 452.4 thousand connections have been made in Pará. The Program seeks to provide access to electricity for families living in rural areas, free of charge, seeking to eliminate electrical exclusion in the country, through network extensions, implementation of isolated systems and making home connections. Luz Para Todos prioritizes beneficiaries of the Brasil Sem Miséria Program, such as: rural schools, quilombolas, indigenous people, settlements, riverside communities, small farmers, families in extractive reserves, families affected by projects in the electricity sector and community water wells.

Figure 3

Operational Structure of the Light for All Program



Source: Operational Manual - "LIGHT FOR ALL" Program (2017).

Rural electrification

Rural electrification has a long history of adversity throughout the world. Providing electricity to rural areas has required significant efforts from governments, consumers and businesses everywhere, and the use of different solutions.

The rural electrification programs that have existed in Brazil since the 1970s are considered public policies, given that their nature refers to bringing a social good to the lives of populations that were isolated, that is, did not have electricity service.

Rural electrification is essential for poverty reduction and necessary for the development of the rural economy, and is also the first step towards modernization (Zhaohong & Yanling, 2015). However, even today, there are rural regions without access to electricity, even though this resource is vital for social well-being and quality of life.

In Brazil, electrification began at the end of the 19th century with the installation of small power plants to provide public lighting, driving force and urban traction, followed by the first private thermoelectric and hydroelectric plants and large power plants. However, as Camargo (2008, p. 22) highlights:

> However, rural electrification did not keep pace with the growth of electrification in large centers and had an exclusionary nature, since consumers who were interested in obtaining rural electrical services were forced to make their own investments, which were often unfeasible due to low purchasing power, resulting in a situation of social destitution.

Rural electrification makes a major contribution to socioeconomic development, improving regional differences resulting from the lack of electricity, enabling an increase in agricultural production through the use of irrigation tools and agricultural machinery in harvesting processes. In addition, tools and equipment assist in the refrigeration and storage of perishable foods for future consumption or sale.

According to Schmitz and Lopes (2009), the first record of rural electrification in Brazil dates

back to 1923, in the municipality of Batatais, São Paulo, when Mr. João Nogueira de Carvalho installed electricity to power an agricultural machine. However, the responsibility for expanding electrical services to rural areas fell to rural electrification cooperatives, since electricity distributors showed little interest and focused only on more profitable ventures.

According to Fournier and Penteado (2008), even in rural areas, where daily customs are not so dependent on energy, access to energy sources means an alternative for improving quality, through the use of various electrical devices that can bring a more comfortable life.

In the lower Amazon, there are several quilombos, many of which have already benefited from the Federal Government's electrification programs, even though these projects have not been completed. However, there are still those that have not been favored by the programs. In the municipality of Alenquer itself, 72 kilometers from the municipal headquarters, there is the Quilombo de São José, which, even though it is just a few kilometers from the power lines, has not yet benefited and there are no plans to start implementing the Luz para Todos Program.

It is worth noting that the São José quilombo does not yet have a title of recognition of ownership nor an Association formed like in the Pacoval Quilombo, which makes the implementation of this policy and many others even more difficult.

Methodological elements of the research

The research was carried out in the municipality of Alenquer, in the Lower Amazon mesoregion, in the State of Pará, more precisely in the Quilombo do Pacoval. The following methodological tools were used: bibliographic survey and review; documentary analysis; on-site data collection (area recognition, application of questionnaires and semi-structured interviews, direct observation); and field diary.

The survey and bibliographic review, as a methodological procedure, provided academic support that will allow a greater degree of knowledge regarding the topic addressed, as well as its delimitation. Consisting of the identification, classification, collection and compilation of data and information available in academic texts (scientific articles, master's and doctoral dissertations); legal devices (decrees, laws and regulations); periodicals; newsletters; reports and on official government websites such as: MME, ANEEL, ELETROBRÁS, as well as those of companies in the electricity sector and the Luz para Todos Program itself.

The data were obtained through questionnaires and semi-structured interviews that took into account the lives of quilombolas before and after the creation of the Luz para Todos Program, as well as the socioeconomic reality.

The sample was made by randomly selecting households, constituting a total of 25 families interviewed. The choice of families was made according to those who had always resided in the Quilombo between 2010 and 2022.

The approach taken in the interviews, as well as the empirical production of the work, sought to obtain information on situations and conditions that could not be clearly observed and measured directly, such as feelings, perceptions, emotions, thoughts, intentions and behaviors.

Data on the implementation of the PLPT in Pacoval was also requested from Equatorial Energia, which, however, did not respond to my letters and, therefore, I was unable to access the company's internal documents. This gap was filled, at least partially, by analyzing government reports.

Thus, this research was organized into four stages: (i) bibliographic analysis (ii) documentary analysis, (iii) field visits and interviews with community members and, finally, (iv) processing of results and textual production.

Presentation and discussion of the results

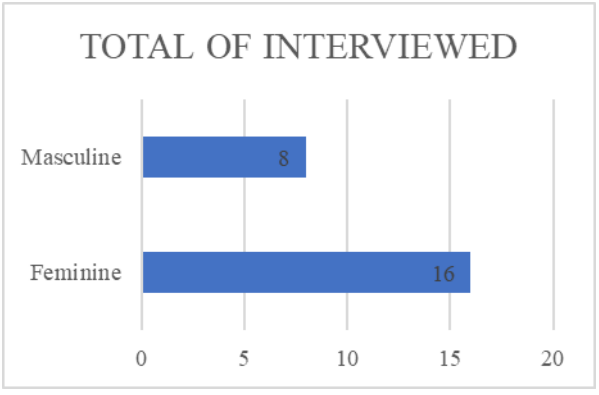
The process of distributing electricity is very complicated and requires several agents that need to work in balance so that the population can enjoy the advantages and benefits generated by

electrification.

The work carried out focused on understanding the socioeconomic development generated after the implementation of the Luz para Todos Program in Quilombo do Pacoval, seeking to evaluate the implementation of the PLPT public policy, as well as the impacts generated by electrification and also evaluate the effectiveness of the Program within the Quilombo.

According to the analysis, carried out in 25 households in the Pacoval quilombo, the profile of the community members follows the following characteristics: 08 of the interviewees were male, that is, (33%) and 16 were female, that is (67%), as stated in Figure 4.

Figure 4
Total of interviewed



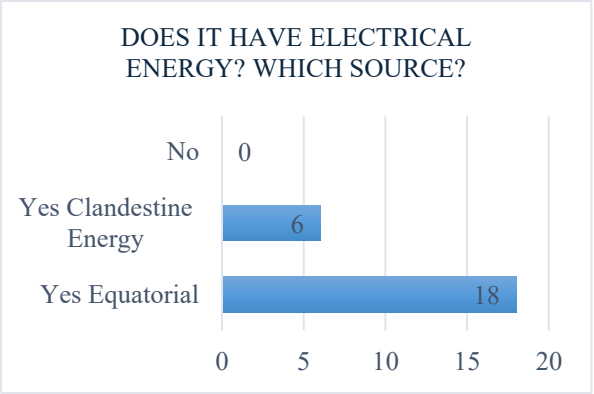
Source: research data (2023).

Data analysis revealed that the majority of respondents had incomplete primary education (42%). This was followed by 21% with complete secondary education and 17% with complete primary education. In addition, 12% of respondents had incomplete higher education, while 4% had incomplete secondary education or completed higher education.

Regarding age group, it is observed that 38% of the interviewees are over 51 years old. Another 29% are in the age group of 20 to 30 years old, while 21% are between 31 and 40 years old. Finally, only 12% are in the age group of 41 to 50 years old.

All households surveyed have electricity. The Equatorial utility company is responsible for supplying energy to 75% of these households. However, 25% of households obtain energy through illegal means, known as “gatos”. In addition, 25% of households receive a discount on their energy bill because they are registered as low-income, while 75% do not receive any type of discount. (Figure 5).

Figure 5
Energy and source



Source: research data (2023).

After the arrival of electricity, the community members acquired different equipment and appliances. Table 1 shows that all the sampled households have a refrigerator and gas stove, 24 households have fans, 22 have televisions, washing machines and cell phones. Thirteen households have radios, 12 have Wi-Fi, 11 have stereos, 10 have washing machines, 9 have freezers, 7 have landline telephones and only 5 have computers.

Table 1
Household Appliances/Electronics

Household appliances/ Electronics	Yes	No
Radio	13	12
Oven	25	0
Sound system	11	14
Refrigerator	25	0
Washing machine	10	15
Television	22	3
Fixed telephone	7	18
Tanquinho	22	3
Fan	24	1
Frezeer	9	16
Computer	5	20
Mobile phone	22	3

Wi-fi	12	13

Source: research data (2023).

In order of importance, according to the community members, the appliances most used by families are the refrigerator, stove and washing machine. The refrigerator is an important appliance, as it enables the preservation of food and medicine, in addition to providing cold water. The stove helps in the preparation of food, and the washing machine, in turn, with the arrival of electricity in the quilombo, helped to reduce work, since in the past, clothes were washed on the riverbank.

In the opinion of 100% of the people who were part of the sample, with the arrival of electrification, the issue of school meals has improved considerably, since it is now possible to preserve different types of food and the menu has become more varied. Likewise, literacy among young people and adults has increased, since with the energy it is possible to have classes at night. Also, student learning has improved, since it has been possible to include the use of computers, TV and sound systems. It was also possible to observe that with the arrival of energy in the community, students are able to carry out academic activities at night, also helping with research through the use of the internet, which has made the work more efficient.

All interviewees stated that with the arrival of electrification, the participation of young people in events held by the community and institutions increased. In the same sense, community members began to participate more in meetings. An increase in the number of leisure activities in the community was also observed due to the lighting. After the arrival of electricity, the community has greater access to information through TV, radio and the Internet.

There was a consensus among those interviewed that food preservation has improved significantly with the arrival of energy, and the use of electrical equipment has also helped to improve income through the sale of products such as: ice cream, popsicles, ice cream, cookies, cakes, jams, juices, handicrafts, flour, among others.

Access to electricity has reduced expenses for the purchase of batteries, fuel and engine maintenance. It has also helped to optimize the time spent on household chores by using household appliances, and free up time for other activities. Production techniques have also changed significantly with the arrival of electricity.

On the other hand, not everything improved with the arrival of electrification. When asked whether the concern for managing the community's needs had improved after the arrival of electricity, 56% of respondents stated that the improvement was significant, while 44% stated that the improvement was not very significant. Another question asked whether the arrival of electricity had reduced accidents, robberies, fights, among others. The response from 56% of respondents was that electrification had improved little, and 44% said that the improvement was significant. Many said that electrification had increased the number of bars and parties held in the community, which led to an increase in incidents and fights.

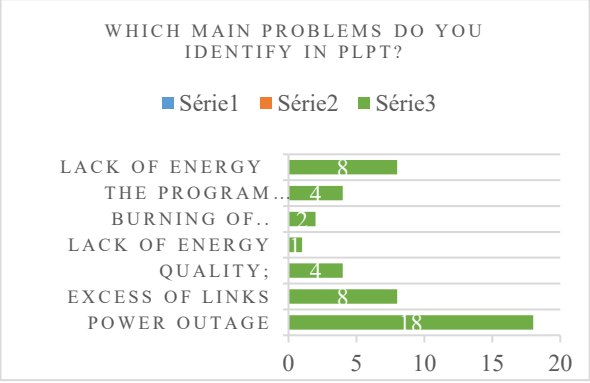
They were also asked whether the arrival of electricity contributed to the implementation of public services, such as health centers, medicines, instruments and equipment, as well as specialized personnel: 20% responded that the contribution was reduced, 24% stated that in this regard the arrival of electricity had no contribution, while 56% stated that electricity was fundamental for the installation of these services.

Regarding the questions about the Luz para Todos Program, the first was whether the implementation of the program took into account the participation of the community members: 12% said that there was no participation from the community members, 36% said that there was little participation and 56% said that the community members actively participated in the discussions. Some people also said that before the implementation of the Program, meetings were held to get the opinion of the residents.

The next question was whether the PLPT satisfactorily meets the demands of the quilombo.

The response from 16% of the interviewees was that the demands are met satisfactorily, 32% said that it does not meet the needs, and 52% said that it meets the needs in a less than satisfactory manner. Most people said that unfortunately the program does not meet the needs of everyone, since failure to complete the program leads to an increase in illegal connections and also presents many other problems, as shown in Figure 6.

Figure 6
Problems with the PLPT



Source: research data (2023).

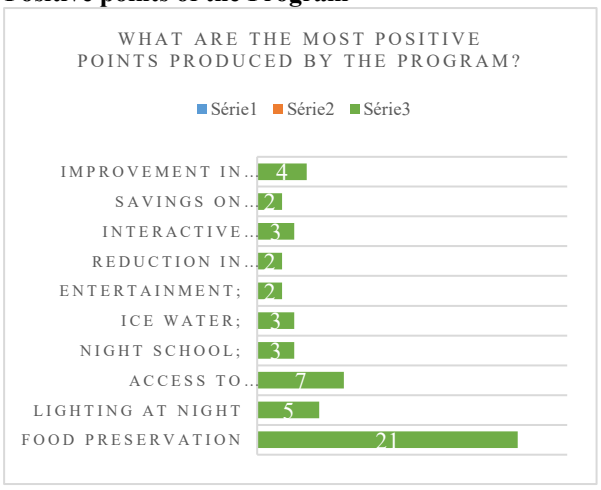
In Figure 6, it is possible to observe the main problems reported by residents in relation to the Program. Power outages were the most cited, since several problems lead to them occurring, such as the other problem mentioned, which is the amount of illegal energy. However, the community members who use this type of energy reported that they did not want it to be that way, but because the program did not continue, they had to use it this way to have access to electricity in their homes.

Another problem reported was the constant lack of power during the winter period. This occurs because the river level is high during this period, so the cables that carry power to the quilombo are very close to the water, and the boats that use the river end up breaking the cables. And since the number of employees at the concessionaire is insufficient to serve the entire municipality, the community ends up going days without power. However, the Association of the Community of Blacks of the Quilombo do Pacoval de Alenquer (ACONQUIPAL) filed a lawsuit against the Energy Concessionaire (EQUATORIAL) in August 2022, as this problem has been recurring for several years.

After the period in which the data analysis had been completed, ACONQUIPAL won the lawsuit filed against EQUATORIAL, and on January 18, 2023, the posts that were responsible for the crossing of the wires that carry energy to the Quilombo were raised, which will make the wires stay well above the river level during the winter period. Boats can pass underneath, thus avoiding the breaking of the cables and, consequently, the lack of energy for this reason.

However, even with the difficulties faced, community members observe many positive points, mainly the change in the community's lifestyle after the arrival of electrification, as shown in Figure 7.

Figure 7
Positive points of the Program



Sourcee: research data (2023).

As shown in Figure 7, one of the most cited positive aspects by the interviewees was food preservation, since, after the arrival of energy, it is possible to preserve various types of food, such as: fruits, fish and meat, vegetables and legumes. Another aspect was access to information, since, previously, news only arrived via battery-powered radio or when someone went from the city and brought the information that was passed on by word of mouth.

Nighttime lighting was also mentioned; some streetlights receive public power and where there is no power, residents themselves put up lights in

front of their homes. There was also a significant improvement in the population's income, with various types of sales, which were only possible with the use of electrical appliances.

As can be seen from the interviews conducted, the arrival of rural electrification significantly changed the lives of the people of the Pacoval quilombo, improving their quality of life, since it allowed the use of household appliances that make people's lives easier, such as for preserving food, which brought new eating habits, as they were able to store other types of food, which were previously impossible because they would perish very quickly. It allowed them to optimize the time spent on household chores with the use of household appliances, thus being able to allocate the time gained to studies, as well as generating income.

The arrival of electricity brought a great improvement in the income of the quilombola population. They were able to use other means of production, and there was a strengthening of production chains through the use of small machines and appliances used in the preparation and conservation and for the sale of different products, which without electrification would not have been possible, at least not on a routine basis. Likewise, the use of electricity reduced expenses with the purchase of batteries, engine maintenance and fuel.

Another important point was the improvement in access to information, since with the arrival of electrification, it was possible to use TV, radios, installation of telephone towers, and Wi-Fi services, which optimized the arrival of information to the Quilombo. Therefore, as can be seen, rural electrification was responsible for major impacts on education, income, public health, and culture.

Final considerations

This research aimed to discuss the socioeconomic development generated after the implementation of the public policy of the Luz para Todos Program in Quilombo do Pacoval, in the municipality of Alenquer, in the state of Pará. In this way, we sought to evaluate the effectiveness of this Program and the impacts of the arrival of rural electrification to the community.

Electrification in Quilombo do Pacoval has emerged as a turning point, catalyzing significant transformations in the quality of life of residents. Electricity, more than a mere service, has become a vector of socioeconomic development, positively influencing aspects such as income, education and health.

Before electrification, food preservation in the quilombo was a constant challenge. The practice of salting food, especially fish and game meat, was common. Hunting refers to the capture of wild animals, usually for food. However, this traditional preservation technique is not without its drawbacks. Excessive use of salt, as pointed out by Oliveira (2015), can be harmful to health, contributing to high blood pressure and other medical conditions. Furthermore, leaving food exposed to the open air during the salting process makes it vulnerable to parasitic insects, compromising its quality.

With the advent of electrification, a significant change occurred. Residents now had access to refrigerators, which allowed for safer and longer-lasting food preservation. This not only improved public health by eliminating the risks associated with traditional preservation, but also had an economic impact. Local traders, now able to slaughter and preserve meat with the help of electric equipment such as saws, scales and freezers, were able to expand their businesses. This resulted in a value-added chain that benefited the entire community, from producers to end consumers.

The implementation of the Luz para Todos Program in Quilombo do Pacoval was met with mixed feelings by the community. On the one hand, electrification brought undeniable benefits, such as access to household appliances and improved food and medicine preservation. However, the arrival of electricity also brought about significant cultural and social changes.

Quilombola youth, now with modern entertainment options such as television, mobile games and social networks, have shown a decrease in interest in traditional cultural activities.

Evenings, previously dedicated to cultural performances that strengthened identity and community cohesion, now compete with new forms of leisure. In addition, the increase in noise pollution, mainly due to bars, has become an environmental and social concern.

Another worrying aspect is the effectiveness of the program. Incomplete electrification has resulted in a clandestine power grid, the so-called "gatos", which not only poses a safety risk but also imposes a financial burden on residents who pay their bills regularly. The frequent power outages and material damage resulting from poor service quality are testament to the need for a review and proper completion of the program.

The implementation of the Luz para Todos Program in Quilombo do Pacoval triggered a series of transformations that redefined the community's daily life and future prospects. Electrification brought with it a wave of progress, reflected in improved living conditions, increased access to basic services, and increased economic activity. However, this change was not without its challenges. The introduction of electricity impacted cultural traditions and environmental balance, highlighting the need for a more holistic approach that takes into account the particularities of the community. Although energy quality has been a catalyst for development, technical and infrastructural failures persist, reminding us that electrification is an ongoing process that requires constant attention and improvements to achieve its full potential for social transformation.

Rural electrification, catalyzed by the Luz para Todos Program, has proven to be a powerful tool for the socioeconomic development of communities, as evidenced in Quilombo do Pacoval. When electric energy was introduced, it brought significant improvements to the living conditions of residents, standing out as a vector of progress and well-being. However, the effectiveness of this public policy is intrinsically linked to its completion and to the consideration of the cultural, social, economic, environmental and spatial particularities of each community.

Universal access to electricity requires continuous and coordinated government action, aiming not only at expanding infrastructure but also at harmoniously integrating electrification with local traditions and the environment. To this end, it is imperative that future public policies and research agendas focus on the intersection between rural electrification and cultural preservation, as well as on the management of noise pollution and other environmental impacts.

For the future, a research agenda is suggested that explores the interactions between rural electrification and cultural preservation, as well as studies on the management and mitigation of noise pollution. Public policies should be formulated to ensure the effective completion of the Luz para Todos Program, with an emphasis on the quality of service and the integration of the specificities of each community. The expansion of the program to other less favored locations should be accompanied by strategies that ensure environmental sustainability and respect for local traditions, ensuring that electrification is a true vector for comprehensive development.

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