

PROJECT MANAGEMENT AND ITS RELATION TO LAND MANAGEMENT IN THE SAN PABLO TOWN CENTER, VALERA DISTRICT, BONGARÁ - AMAZONAS

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ABSTRACT

The objective of this research is to propose project management and its relationship with the control of the territory, in the population nucleus of San Pablo, district of Valera, Bongará-Amazonas, the inadequate management of the projects results in the misuse and management of the territory, as well as in each of its specific aspects for each subzone of the region, the research has a qualitative approach, descriptive-explanatory type. The sources were primary, including the plan mentioned above and supporting documents. The main instrument was a data collection table of our elaboration and based on the Corine Land Cover model. It was also based on data collection, mapping, and measuring geographic areas, both from documents and the field. As a result, a quantity of territory is proposed for each activity, delimiting it in a suitable place through projects for the adequate management of the region. In the case of the “Agricultural and Reforestation Zone”, of a total of 1,042 Ha, 937.8 Ha (90% can be recovered, so it is emphasized that projects and their prior management, from the planning stage at the territorial level, can give an approximation of what is expected for its future execution and be more efficient.

KEYWORDS

Management, Projects, Territory, Ordering.

1. INTRODUCTION

Entering the South American context, the characteristics of this territory, the predominance of the Andes Mountains and the Amazon jungle, make favorable situations occur in many aspects. Still, simultaneously, they make other situations with specific problems arise. This is why Peru is no stranger to this; the issues are often accentuated even because of its location (Alomoto, 2018).

In the contexts above, it is understood that various factors lead national or local governments to adapt their policies, regulations, and actions to the multiple conflicts and events generated in their territories, caused by various factors, whether physical or as part of their management. This is how situations arise, such as the management of the region. The inhabitants themselves have been physically transforming it due to the various activities developed throughout history. Many cases, such as those mentioned above, have been carried out responsibly. Others have not, especially where there is evidence of natural diversity of flora and fauna and natural resources necessary for the subsistence of human beings. Other related activities exploit resources for economic purposes, and Peru is no stranger to this (AMBIO, 2018).

The aforementioned corresponds to the management and use of the soil or territory. However, it is already evident that the overexploitation of resources and soil, whether legal or informal, leads to dramatic changes in the region. This makes the authorities look for ways to order and manage it correctly; it should be remembered that the characteristics of the mentioned territories often complicate that action.

It should be remembered that many of these territories are hit by the ravages of nature, even more intensely in some seasons, aggravating the vulnerability of the land and its inhabitants. As mentioned in the magazine “Abriendo Brechas”, regarding the relationship between territory and society, “Territory must be considered as a multidimensional accumulation of value capable of producing a set of economic, social, environmental and cultural benefits for an indefinite period” (Abbasi *et al.*, 2019).

Solutions that seek to control this problem, mentioned above, are projects and their management, which intervene in specific areas and each with its problems. Still, it is not

enough to attack in a particular way, if not most of the time; more comprehensive plans are required to mark the path of future projects within a timeline. Land Management Plans (POT), Urban Plans (PU), Land Development Plans (PAT), environmental, among others; which are documents designed to manage the territories through various policies and projects, understanding, above all, that in non-urban areas or population centers, as is the case in many cases in the interior of Peru, they are essential. Situations that must be addressed with solid directions by the Government in the order of complete decentralization and thinking above all that what is at risk are human lives and the very life of the environmental nature of the territory (Al-Hemoud *et al.*, 2019).

In the context of this research, it is worth mentioning that the Peruvian territory is no stranger to this; on the contrary, having the aforementioned territorial characteristics generates a series of problematic situations that are difficult to control or mitigate. Thus, natural phenomena and disasters are already part of the daily coexistence of these areas, and one of the main problems is the lack of intervention by the authorities to prevent damage or solve the problems generated after they have occurred.

The economic activities that are habitually practiced in many of these places and population centers are related to the extraction and exploitation of natural resources without control, such as logging and mining. It is common to observe that the exploitation activities in these places, which are generally populated centers a little far from important cities, some of which are even difficult to access, are carried out informally and without any control. Thus, with the ruggedness of the territories, their climatic phenomena, the coexistence of the inhabitants with their environment is the riskiest, aggravating the land management problem, the central theme of this research (Arana, 2018).

Governments and authorities seek to generate projects and plans to solve part of these problems somehow, whether they are related to natural disasters or caused by the inhabitants themselves. The situation is that every time these are generated, they are not carried out with adequate management or with an in-depth analysis of the real problem (Ascue, 2018).

2. METHOD

2.1. TYPE OF RESEARCH

For the present work, the type of research is “Descriptive and Explanatory,” since it describes and explains the causes that originate the problem and the projects that seek to mitigate it, all about the population center, its territory, and nearby environment.

The research method is deductive since it goes from the general to the particular; that is to say, a broad problem is observed, and the parts are analyzed step by step until specific cases are reached (Barrionuevo, 2018). The research approach is qualitative since the indicators depend on specialists who give it a qualitative value for its analysis.

The level presented is non-experimental research, “since the variables are not deliberately manipulated. To observe phenomena as they occur in their natural context, to analyze them” (Castillo, 2018).

2.2. POPULATION AND SAMPLE

The town of San Pablo and its area of influence, which covers part of the district of Valera, province of Bongará in the Amazon region, was selected because it is influenced by the activities that affect it and, in turn, its area, presents the most critical problems. This area comprises 1,069 ha. The sample is non-probabilistic because it was necessary not to exclude any amount of territory from the population since the relationship sought to demonstrate that both variables are evident throughout the region and physically.

2.3. LOCATION OF THE STUDY AREA

Centro Poblado San Pablo in the Valera district.

The study area was located and delimited through observation and review of the plan, according to the problems and the possible projects indicated. This led to defining the study area, which comprises the town center and the influence of its immediate surroundings; then, we proceeded to measure the selected size resulting in the sample obtaining data in hectares of territory. Figure 1 shows the location of the San Pablo population center within the Valera district. In contrast, Figures 2 and 3 show the analysis and diagnosis in plans that

were developed for the rural-urban plan for San Pablo. Figure 1 shows the entire territory selected for this research (Cho & Bruce, 2021).

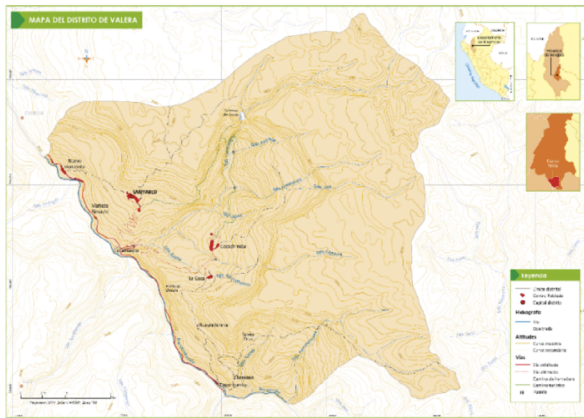


Figure 1. Map of Valera district.
Source: own elaboration.

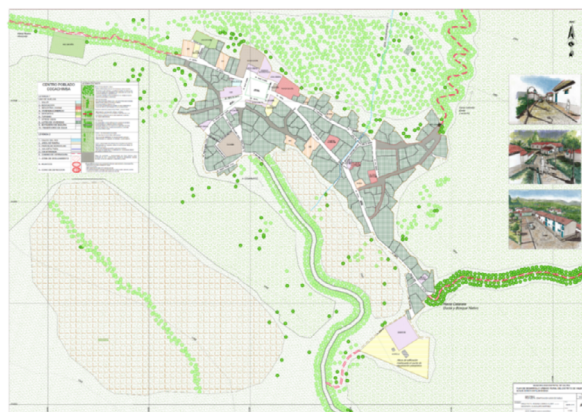


Figure 2. Zoning and land use proposal map, San Pablo town center.
Source: own elaboration.

Map prepared for the San Pablo population center, detailing the information on the projects proposed to mitigate or solve each problem or case described in the map in Figure 2 (Esenarro *et al.*, 2021). The delimitation of the study zones for the specific hypotheses depended on the dimensions that make up the dependent variable, for which three were identified. Each one was also subdivided into different sectors, defined by the physical characteristics of the territory and the activities carried out in it. The first is called the

“Agricultural and Reforestation Zone,” the second is the urban expansion zone, and finally, the protection zone (Figure 2).

2.4. DATA ANALYSIS

Once the data collection stage was completed, the information was organized in the data collection table to relate each area of the zones with the corresponding type of project. For data processing, the “Excel Spreadsheet” computer tool was used. For the data analysis, as shown in Table 4, the resulting areas were taken from the overlapping plans in the study zones, which generated a percentage of influence on them when the respective projects were applied. The analysis of the results obtained was developed using counts and qualitative verification according to each case, where the most relevant aspects of each zone, representative information of each variable, and in particular of each situation were evidenced (Etsay, Negass, & Areay, 2019).

Table 1. Distribution of areas.

VARIABLE	OPERATIONAL DEFINITION	INDICATORS (V.D.)	AREA (Ha)
Territory management	Agricultural and reforestation zone	Qty of area for cultivation	521
		Qty area for reforestation	521
	Urban expansion zone	Qty area for buildings	11
		Qty area for roads	3
		Qty area for parks, squares, and gardens	3
	San Pablo protection zone	Qty area at risk for landslides	8
		Qty area affected by flooding due to rains	2

Source: own elaboration.

3. RESULTS

Project management is related to the control of the territory in the town of San Pablo, Valera - Bongará - Amazonas district. When relating the variables and reviewing the analysis

results, the validity of the proposed general hypothesis is demonstrated since a substantial percentage of territory influenced by the projects is observed. Thus, the management of the projects suggested in the research has a significant relationship proposal about their actions in the environment when comparing the region’s total recovered area (Femenia-Ribera, Mora-Navarro, & Martinez-Llario, 2021).

Throughout the research development, there was constant advice from professional experts who participated in the development of the plan and external experts, such as architects, engineers, and geographers (Hernández, 2018).

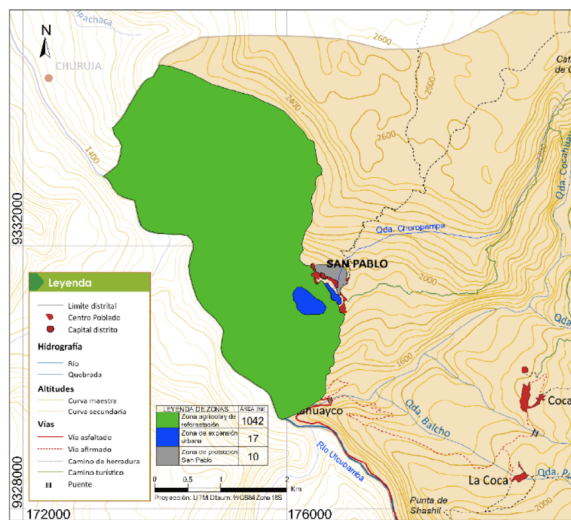


Figure 3. Map of geographic zones.
Source: own elaboration.

Map showing the amount of area delimited for each study zone. The delimitation of the study zones depended on three dimensions. Each one was subdivided into different sectors, defined by the physical characteristics of the territory and the activities carried out in it. The first is called the “Agricultural and Reforestation Zone,” the second is the urban expansion zone, and finally, the protection zone (Tafur *et al.*, 2020).

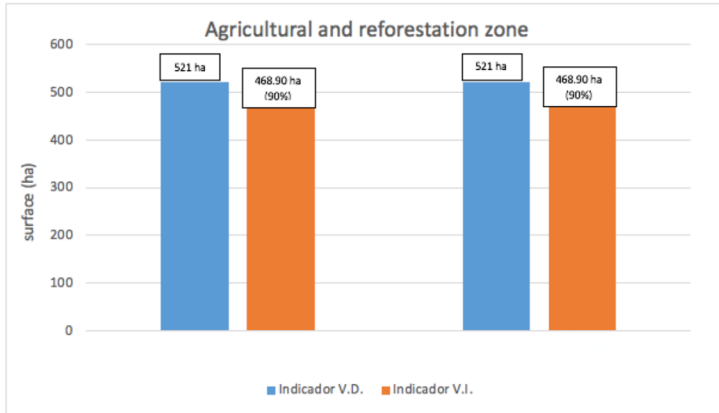


Figure 4. The ratio between % areas to be recovered and total areas per sector.
Source: own elaboration.

Project management is related to the direction of the agricultural zone and reforestation in the San Pablo population center, Valera - Bongará - Amazonas district.

The amount of land for cultivation is 521 ha, of which 90% will be recovered through productive plot projects. The amount of territory for reforestation is 521 Ha, of which 90% was identified, will be retrieved by reforestation projects with native species. The percentages of the area not recovered or not intervening in the territory were placed in the field because they are not accessible and include complimentary or road areas (Hinojosa *et al.*, 2021).

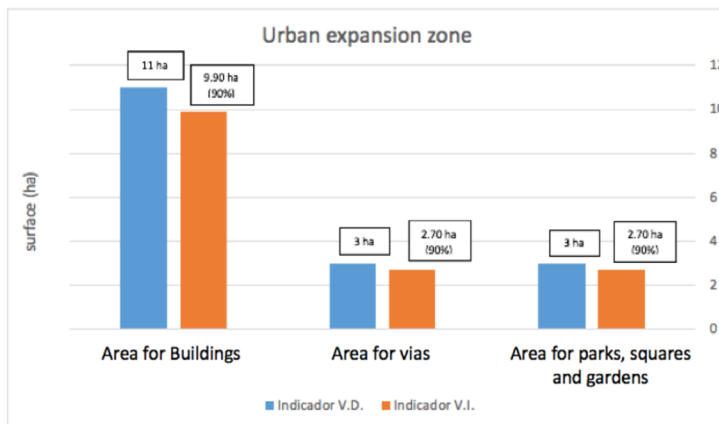


Figure 5. The ratio between % areas projected for expansion and the total regions per sector.
Source: own elaboration.

Project management” is related to the “Management of the urban expansion zone” of the San Pablo population center, Valera - Bongará - Amazonas district.

The amount of land for buildings is 11 hectares, of which 90% will be used as a possible projected area for that purpose. The amount of land for roads was 3 hectares, of which 90% was used as a projected area for sidewalks, trails, and tourist corridors. The amount of territory for parks, squares, and gardens was 3 Ha, of which 90% was used as a projected area for that purpose. In this case, since the urban expansion projection works as a block, it was distributed proportionally for each indicator, being affected in the same way by the resulting remaining area, which is made up of a ravine and other irregularities typical of the area, where it will not be possible to project (López, 2018).

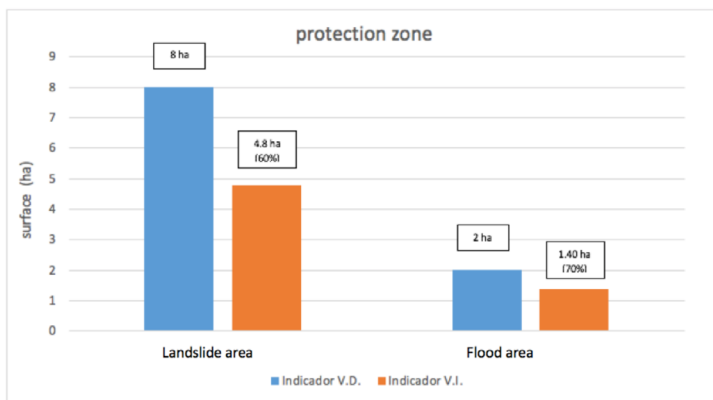


Figure 6. The ratio between % of protected areas and total areas by sector.
Source: own elaboration.

The “Project Management” is related to the “Management of the Protection Zone” in the town of San Pablo, Valera - Bongará - Amazonas district. The area at risk of landslides is 8 hectares, 60% of which is protected by projects for the treatment of slopes, ravines and containment elements, which defines a specific intervened area and one that is protected from the town center. The non-intervention area is the area above the slope and the projects. The area affected by flooding due to heavy rains was 2 hectares, which will be 70% protected when developing projects for possible road channeling, paving, and treatment of the Choropampa stream, depending on the analysis of future projects (Ministerio de Vivienda, Construcción y Saneamiento (MVCS), 2018).

The possible interventions given by the projects proposed in this research are based on projects that recover and improve the territory and its future management, as evidenced by the proposed reforestation of a forested area that deteriorated by indiscriminate logging and inclement weather, as well as the transformation of part of this area into productive plots with traditional crops in the study area. For the urban expansion zones, planned growth projects are proposed in their area, considering all the critical distinguishing factors, such as roads, recreation areas, meeting places, and buildings. For the protection of the town center, it should be understood that the deteriorated state of its facilities and roads was evidenced, generally due to the heavy rains and the little intervention of the streams, surrounding hillsides, and within the same urban area of the town center itself.



Figure 7. Image of the flood zone.
Source: own elaboration.

The image shows the typical balcony, characteristic of the place, which is deteriorated, and the wall, a specific characteristic of the buildings exposed to the area flooded by rains.



Figure 8. Intervention project in the flood zone.
Source: own elaboration.

The image shows the intervention proposal for a road in San Pablo affected by flooding, referred to in Figure 8, using the urban architectural perspective technique.



Figure 9. Image of the Plaza de Armas, south side.
Source: own elaboration.

The image shows the deteriorated Plaza de San Pablo, as well as the surrounding buildings.



Figure 10. Intervention project in the Plaza de Armas, south side, in perspective.
Source: own elaboration.

The image shows the proposed intervention in the San Pablo square and the surrounding buildings, using the urban architectural perspective technique.

At a general level and by way of analysis, in the present study, the observation allowed a verification and review of the study area, being the fieldwork of vital importance, which was made compatible with the information collected in the office, both of the plan taken as a reference and its related documents such as regulations and zoning. Thus, a data collection table was used as an instrument for data collection, which allowed relating the data obtained from the geographic zones, which, in the plan, responded to a specific problem to be solved, which will be done with careful project management applied to each

one of them. This leads to the reflection that, since in many cases plans have been carried out at the national level that are effectively proposed for specific territories, their correct application will depend on how each type of project is managed, starting with the creation of the plans and considering a timeline according to their possible influence during and after their execution (Sobrino, 2018).

The relationship between the independent variable, “Project management” and the dependent variable, territory management, was achieved by superimposing the spots as shown in Figures 1, 2, 3, 4, 5, 6, and 7, which represented various sectors with specific characteristics and percentages of related areas. Some of the selected territories, others, indicating the influence of the projects on these areas, and other spots indicating the rest of the data. These are handled horizontally to relate them in the data collection table, calculating percentages that define the relationship sought through the hypotheses.

4. DISCUSSIONS

According to the results obtained from the research and compared with previous research studies, it can be observed that the use of the territory is gradually affected and influenced by the accelerated urban growth, thus agreeing with the present research when talking about the urban expansion zone, which forces within the plan to change the existing uses of the territory. While it is true that it agrees with the above mentioned, in contrast to the mentioned study, a land-use plan helps or seeks to reorganize the management of the territory in the most coherent way. In the case of the present research and that of Arana, the data collection table tool is used, which generates a conclusion referring to its powerful utility for analysis of the territorial type or referring to geographic areas with determining land uses (Perez, 2018).

We agree with Alomoto’s work (2018) in that territorial planning seeks to mitigate the effects caused by various geographic factors. We are even using the TO as an entire governing body. However, in this thesis, we do not propose a POT but methodological guidelines or directives that can be annexed or complemented.

In the case of Hernández, the ZEE is a preponderant factor for the TO, as well as for the methodological process proposed in the case of the present research, even though it does

not generate a POT, it could be a guiding component to generate the predictions expected from the plan (Sroorvogel & Mulder, 2021).

Proposal for a methodology to evaluate the effectiveness of Natural Protected Area (NPA) management to measure the level of establishment and management of NPAs administered by the National Service of Natural Protected Areas (SERNANP).

Castillo (2018) focuses mainly on the management of green areas and its strong relationship with tree planting, agreeing with the present thesis, in the sense of starting with initial project management, seen in its content and the necessary processes, which also start with projects for the subsequent action in a given place, focusing or oriented more to the “Management and Arborization of Green Areas” of a given sector. It differs from the present research because the study area is closer to a large urban area such as Lima. It starts from the analysis of the territory, as the current investigation, but focuses it, a little different and not less important, to the sustainable development of a population with a persistent social problem (Vargas *et al.*, 2021).

Barrionuevo (2018) proposes concepts and theories necessary to strengthen TO in Peru. While it is true that the primary source of this thesis is a Rural-Urban Plan, based on the ideas of POT, the purpose of seeking a result through a methodology of its aims is to contribute a theoretical part to the already existing at the TO level (Xie *et al.*, 2020).

For Ascue, the territories’ vulnerability is one of the essential points to attack, which is essentially in agreement with the present thesis. In both, the behavior of society and its effects is highly crucial (Xie *et al.*, 2021).

5. CONCLUSIONS

The 1,069 hectares of the study area show the total territory affected by the problems described, and specific projects are suggested to mitigate them as appropriate. Although the jurisdiction of the geographic zone in which this research was carried out corresponds to the entire Valera district, the specific area of the study is strongly influenced by the presence of the San Pablo population center and its area of influence, which is the capital of the district.

There are areas used for agriculture in the study area that is not clearly delimited or adequately managed. There is also evidence of indiscriminate and informal logging and deforestation in the area. The revised “Urban-Rural Plan” proposes a certain amount of territory for each activity, delimiting it in a good place through projects for the proper management of the region. In the case of the “Agricultural and Reforestation Zone,” out of a total of 1,042 ha, 937.8 ha (90%) can be recovered.

There are areas where the population has been settling and building without considering the dangers that this entails, as there are risk areas identified in the evaluated plan. Therefore, the projects to delimit the different proposed areas observed in the Plan are differentiated by the characteristics of each of the components that will make up a future urban expansion, noting that they are located correctly in the proposed area. Therefore, in this urban expansion zone, of 17 hectares, 15.3 hectares (90%) are offered for planned expansion projects.

With its rugged geography and rainy climate, the protection zone creates a series of problems for the town center and its surroundings. Therefore, the plan delimits protection zones and proposes possible projects to mitigate each case. The proposed projects have a strong influence on the affected areas as they seek to protect a large percentage of their territory, safeguarding the lives of their inhabitants. Unlike the previous cases, there are no percentages of protected areas that reach or approach 90%. However, it is justified that 60 and 70% of the 10 Ha have a substantial impact relationship because the possible projects in these cases do not cover the total mapped territory, but limits where the barriers are placed, protection elements or modification of the environment and also the areas that would be affected and with the projects are protected.

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