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DEVELOPMENT OF A COMPUTER SYSTEM WITH MOBILE DEVICES FOR THE SUSTAINABLE DEVELOPMENT AND PRODUCTION PROJECTS EVALUATION

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ABSTRACT

The public and private institutions of our country do not have a computer system that allows assessment of the sustainability of the profiles and business plans that arise, provided important today to ensure sustainability.
The objective of this project was to evaluate the feasibility of developing and using a computer system with mobile devices, for the formulation and evaluation of production projects under the focus of sustainability and regulations of the National System of Public Investment
For obtaining the indicators, employment MESMIS methodology, where it was determined the 20 indicators that were used to build the system. The computer project SYSPROJECT (v.1.0.0), both the mobile and the web have been created with the software development methodology called Rational Unified Process (RUP), object-oriented, using the life cycle evolutionary prototype taking as tools for programming and development to PHP, MySQL, Android, SQLite, eclipse and java.
The purpose of this project was to develop a computer integrated both mobile and web, that serves as a tool for management, audit, control, and documentation of business plans and profiles of productive projects.

Keywords: computer system, phone system, project evaluation, sustainability

1. INTRODUCTION

All of this new century societies have a great "problem socioeconomic-environmental" over consumption of increasingly scarce resources to meet the growing needs of humanity. The resources we provide the environment are limited, which is why issues related to administration, distribution and limits their availability, as well as the damages they cause, say pollution and reducing the diversity among species as primary target, so that the desire to achieve economic development that benefits current

generations do not erode the capacity of future generations and achieve achieve truly sustainable development.
The study and evaluation of investment projects is one of the edges that solves the problem of allocating scarce resources. In this regard, it is vital currently evaluating investment projects not only from the standpoint of economic and financial, but also measure their social and environmental impact, to achieve truly sustainable development.
The present research aims to use ICT for agriculture, by developing a computer system with mobile devices for evaluating sustainable development and production projects

Objective
Evaluate the feasibility of developing and using a computer system with mobile devices, for the formulation and evaluation of productive projects under the sustainability approach and the regulations of the National System of Public Investment

Specific Objectives

- Evaluate the feasibility of Automating the process of formulation and evaluation of development projects a computer system, giving quality to information via mobile devices
- Compare the analysis of the economic, social and environmental impact of the projects using the conventional method and the automated method, in terms of time, efficiency and quality of information for the development of productive projects

2. MAIN HEADING

MATERIALS AND METHODS

MATERIALS

The software and hardware that were used in this work are:

Programs:
• Microsoft Windows Seven
• Microsoft Word 2007
• Microsoft Excel 2007
• Microsoft Power Point 2007
• MySQL
• Rational Rose 2007
• Adobe Dreamweaver CS6
• WampServer
• PHP 5.2.6
• Android SDK 2.2.0
• Eclipse Indigo

Hardware:
• HP 01 Laptop Core I3, 4 GB RAM, 500 GB DDR
• 01 Epson T50
• 01 HP LaserJet P1006 Printer
• 01 TablePC
• 01 Cellphone Samsung Galaxy III
• 01 Cellphone Nextel

Unit of Analysis and Sample:
Contained areas for the development of this research. Consisted of the town of Huapra, belonging to the district of San Miguel de Aco, Carhuaz Province, Ancash Department. The study group, consisted of 180 inhabitants according to INEI, which will be taken as reference for the development and validation of the sustainability indicators

METHODS
The research was conducted in two phases in the period from January to September 2012

PHASE I
IMPLEMENTATION OF THE METHOD FOR DETERMINING MESMIS SUSTAINABILITY INDICATORS
As a methodological tool was used Assessment Framework Systems incorporating NRM Sustainability Indicators (MESMIS) proposed by Masera et al. (1999). This tool has been used in several assessments, such as those presented Ridaura Masera and López (2000), for different regions of Mexico.

Study area

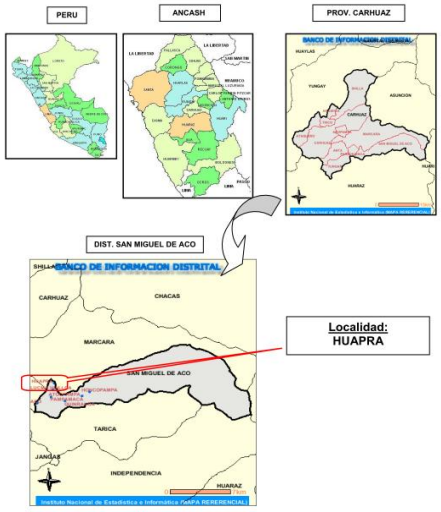

Figure 22. Location Huapra Community, District of San Miguel de Aco - Carhuaz – Ancash

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The MESMIS incorporate six general elements: 1) determination of the object, 2) identifying critical point, 3) selection of sustainability indicators, 4) editing and monitoring (data collection in the field), 5) presentation and integration of results and 6) conclusions and recommendations.

Step 1. Determining the object
The unit of analysis of this study it was the family system interrelated with the community, in this sense, the farms were characterized on the socio-economic-environmental.

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Step 2. Critical for sustainability attributes
According MESMIS (Masera et al., 1999) identified management systems studied, compared to the next step was to identify critical points in each of these systems

Table No. 2. Main weaknesses (hot spots) that affect the sustainability of the reference management system, related to the sustainability attributes

Atributo	**Principales debilidades del sistema**
Productivity	Low productivity of maize, potato and wheat
	High cost of production, mainly because of the chemicals and fuels, low prices and low aftermarket option.
	Inferior quality corn, potatoes and wheat due to improper handling of harvest and post-harvest
Stability, Resilience and Reliability	Monoculture corn, potatoes and wheat
	Pest and disease damage, mainly dry dry, and rust blight the crops of corn, potatoes and wheat.
	Erosion problems, with loss of water and soil fertility
	Improper management of fertility, nutrition of maize, potato and wheat
	Improper use of pesticides, generating social and environmental problems
	Lack of farmer participation in associations
Adaptability	Low level of application and / or limited availability of agricultural technologies based on the principles of sustainability
Equity	Requirement as many family wages

	Little integration into the productive process and decision-making
Self-Management	Weaknesses in the accompaniment of productive activities
	High production costs due to the use of external resources
	Buying off-farm food

Step 3. Selecting sustainability indicators
Were those that best fit to the problem detected and easier to evaluate and monitor the conditions Huapra community that will be evaluated Huapra community.

Table No. 3. List of indicators for the evaluation of sustainability in agricultural systems

N	Indicador	Grupo
1	Land Tenure	Technology Indicators
2	Irrigation in their fields	
3	Labor	
4	Management and breeding of their animals	
5	Marketing of livestock products	
6	Pasture Production	
7	Crop productivity	Economic Indicators
8	diversified income	
9	Farm planning and production records	
10	Support	
11	food self-sufficiency	
12	sustainable agrobiodiversity	
13	family integration	Social Indicators
14	Poverty Level	
15	Use of conservation practices	
16	Biodiversity	Environmental Indicators
17	Availability of water	
18	Implementation of practices for soil conservation	
19	Practice for the management of solid and liquid waste	
20	Practice for the management of pests and diseases	

Step 4. Methods for measuring and monitoring the indicators
This stage includes the design of assessment tools to obtain the desired information. For each indicator selected should proceed to determine the most appropriate measurement mechanism.

Step 5 - Presentation and integration of results
This phase included the design of assessment instruments to obtain the desired information.

Step 6 - Conclusions and recommendations
Finally, in this step was the synthesis of the analysis and proposed suggestions and measures to strengthen the sustainability of the systems

PHASE II
COMPUTER SYSTEM DEVELOPMENT WITH metología RUP
For the development of the computer system (Web and mobile), we used the life cycle evolutionary prototype, and the methodology to be used will be the Rational Unified Process (RUP), which includes the following phases:

I. Business Modeling
II. Requirements
III. Analysis and Design
IV. Implementation
V. Testing
VI. Implantation
• Configuration and change management
• Project Management
• Environment

Implementation of computer system
We refer in this section specifically for the construction of the system. The methodology proposes a progressive construction based on successive prototypes. Depending on the situation you plan implementation through construction of these prototypes, each of which will build on the previous prototype.

RESULTS AND DISCUSSION

MOBILE SYSTEM FOR DATA COLLECTION (SYSPROJECT MOBILE)

TECHNOLOGY INDICATORS

Figure 39. Join technical indicators to SYSPROJECT MOBILE

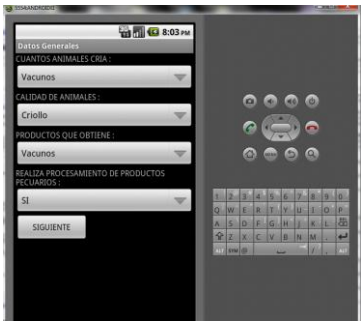

Figure 40. Join technical indicators to SYSPROJECT MOBILE

WEB SYSTEM (SYSPROJECT WEB)

Figure 43. Home Screen WEB SYSPROJECT

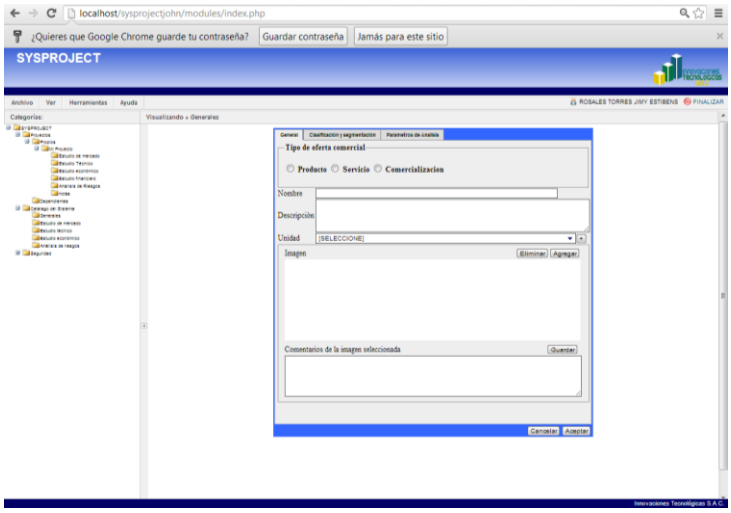

Figure 46. WEB SYSPROJECT Technical Study

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