Complexity in the Management of Rural Development Projects: Case of LASESA (Spain)*

Cómo citar este artículo: De los Ríos-Carmenado, I., Guillén-Torres, J., y Herrera-Reyes, A. T. (2013). Complexity in the management of rural development projects: Case of LASESA (Spain). *Cuadernos de Desarrollo Rural*, 10(71), 167-186.

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Recibido: 2012-09-02 Aceptado: 2012-09-08 Evaluado: 2013-02-15 Publicado: 2013-06-30
SICI: 0122-1450(201306)10:71<167:LASESA>2.0.TX;2-T

Abstract

The project and project management complexity has acquired growing interest. This research analyzes the dimensions of complexity in relation to rural development projects and the existing tools for evaluation. We present a novel methodological approach to assess two complementary aspects of project management: (a) the level of complexity of the project, and (b), the effects on behavioral skills. Based on the model Working With People (WWP), the methodology is applied to the Community of Irrigators LASESA in Huesca (Spain), in a rural development project of high complexity, with more than 600 direct beneficiaries involved. Results show how the management of a complex project generates positive effects on the development of behavioral skills of the people involved in the work.

Keywords author:

Complex project management, rural development, assessment, personal skills.

Keywords plus:

Rural development, project management, project design, project evaluation, Spain.

* This article is the result of the projects carried out by the Research Group Gesplan (UPM) and Universidad Politécnica de Zaragoza in Huesca (Spain) that are still operational. Through these projects we are developing a research process in the rural development and project management area. These projects have been financed by the Community of Irrigators LASESA (Huesca, Spain), Technical University of Zaragoza and the Technical University of Madrid.

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La complejidad en la dirección de proyectos de desarrollo rural: el caso de LASESA (España)

Resumen
La complejidad en los proyectos y la complejidad de la dirección de proyectos son conceptos cuyo interés va en aumento. En esta investigación se analizan las dimensiones de la complejidad en la dirección de proyectos de desarrollo rural y las herramientas existentes para su valoración. Se presenta un proceso metodológico novedoso para valorar dos aspectos complementarios de la dirección de proyectos: (a) el nivel de complejidad del proyecto; y (b), los efectos en las competencias de comportamiento. La metodología se aplica, desde los principios del modelo Working With People (WWP), en la Comunidad de Regantes LASESA en Huesca (España), en un proyecto de desarrollo rural de alta complejidad, con más de 600 beneficiarios directos implicados. Los resultados evidencian cómo la gestión de un proyecto complejo genera efectos positivos en el desarrollo de las competencias de comportamiento de las personas que se implican y participan en los trabajos.

Palabras clave autor:
Gestión de proyectos complejos, desarrollo rural, evaluación, habilidades personales.

Palabras clave descriptores:
Desarrollo rural, administración de proyectos, elaboración de proyectos, evaluación de proyectos, España.

La complexité dans la gestion de projets de développement rural: le cas de LASESA (Espagne)

Résumé:
La complexité dans des projets et la complexité de la gestion de projets sont des concepts qui sont de plus en plus intéressants. Dans cette recherche, les dimensions de la complexité dans la gestion de projets de développement rural et les outils existants pour sa valorisation, sont analysés. Un nouveau processus méthodologique pour valoriser deux aspects complémentaires de la gestion de projets est présenté: (a) le niveau de complexité du projet; et, (b) les effets dans les compétences comportementales. La méthodologie est appliquée, dès les principes du modèle WorkingWithPeople (WWP), dans la communauté de Regantes LASESA à Huesca (Espagne) dans un projet de développement rural de haute complexité, avec plus de 600 bénéficiers directs impliqués. Les résultats montrent comment la gestion d'un projet complexe entraîne des effets positifs dans le développement de compétences de comportement des personnes qui s'impliquent et qui participent dans les travails.

Mots-clés auteur:
Gestion de projets complexes, développement rural, évaluation, habilités personnels.

Mots-clés descripteur:
Développement rural, gestion de projet, projet de développement, évaluation du projet, Espagne.

Introduction

Knowing the level of complexity of rural development projects helps providing appropriate direction to them. Although Project Management is a key discipline for the success of projects (Whitty and Maylor, 2009), currently many projects fail because they do not meet their goals; they are more and more complex and the traditional methods to address them are insufficient (Helbrough, 1995; Williams, 1999). Dominant research in the field of project management (Yeo, 1993; Morris, 2002) has shown the need to overcome the technical outlook of development projects. Other works in the field of social sciences seek the integration of learning in project management (Galbraith, 1973; Stinchcombe and Heimer, 1985; Winch, 2004; Argyris, 1997; Hodgson, 2002; Cicmil et. ál., 2006).

Thus management approaches arise in whichthe priorities are practical action, experience, the quality of social interaction, communication from decision-making structures and the relationship between agents (Cooke-Davies, 2004; Thomas and Mengel, 2008). These approaches consider the input of external knowledge as a basic benefit element to improve management (Auluck, 2002; Holden, 2008; Huemann, Keega and Turner, 2007) and recognize the importance of contextual issues (Flyvbjerg, 2002; Morris and Pinto, 2004; Davies and Hobday, 2005) that influence project planning and management. The need to integrate expert knowledge and experience of the parts involved (Cazorla and De los Ríos, 2012) arises to generate new ways of interacting in specific situations. The understanding of human actions to address a particular situation in a dynamic and complex process (Cicmil et ál., 2006) is critical in the face of new contexts and challenges of rural development projects.

The origins of complexity in project management are part of the theory of complexity, which emerged in the 90's (Strogatz, 2004) and is applied in multiple disciplines in an attempt to solve complex problems (Ziemelis and Allen, 2001) on a wide range of disciplines, including the field of development (Dombkins, 2008). Although several authors have addressed the concepts of complexity and project management it is not really until 1995 when both are actually associated (Payne, 1995). Professionals describe their projects as simple or complex when there are problems of management (Bennett, 1991). The term "complexity" is established as a connection between the condition of a complex system and the understanding of it (Bar-Yam, 2003). From these works, Baccarini (1996) discusses the different dimensions of complexity according to two criteria: the interplay between the parts involved and the diffuse or unknown.

Subsequently, the Cynefin Framework (Marco Cynefin), introduced in 1999 by David Snowden (2000), is considered one of the first practical applications of the theory of complexity to the science of project management. In 2006, project management is added to the list of disciplines related to the theory of complexity (Whitty and Maylor, 2009) and in the same year, IPMA[1] approved the concept of Complex Project Management. Currently, complexity is conceived as another feature of the project.

This complexity has been analyzed according to the size and uncertainty of the projects (Bubshait and Selen, 1992; Kähkönen, 2008), the interrelationship and interdependence between the parts of the project (Baccarini, 1996;Belout and Gauvreau, 2004), the difficulty depending on skill requirements, the pace and urgency of results (Payne, 1995) and interaction with the context (Geraldi and Adlbrecht, 2006).

Moreover, several studies have highlighted the *different dimensions* of the projects' complexity (Pryke and Smyth, 2006). Turner and Cochrane (1993), and Shenhar and Dvir (2007) refer to the *technological complexity*. This dimension has prevailed for years, starting from the scientific rationality of the modern project, (Bond and Hulme, 1999), leading to the first models of development planning (Mannheim, 1949; Lindblom, 1977; Etzioni, 1968). Baccarini (1996) adds *organizational complexity* as of the differentiation and interdependence between the operational elements of the organization. Williams (1999) refers to the complexity of uncertainty and adds *structural complexity*, referring to the underlying structure of the project. In rural development projects, different structures and partnerships emerge, which are organized as operational elements for territorial cooperation of agents and local institutions (Cazorla and De los Ríos, 2012; De los Ríos, Díaz-Puente and Cadena-Iñiguez, 2011a).

These structures —as the so-called Leader Local Action Groups— are the operating platform to address the bottom-up approach, facilitating the management of projects from the bottom upwards, allowing local stakeholders to engage in a participatory manner and taking into account the reality of each territory. As of 2008, with Girmscheid and Brockmann, the dimension of *social complexity* began to be addressed in projects. From this dimension, science, engineering and technology were combined with society, economy and culture (Yingluo, 2008).

1 IPMA, its english acronym for International Project Management Association.

Other works (Nonaka, 1994; Stacey, 1995; Koerner and Klein, 2008; Yongkui and Yujie, 2009) have emphasized the importance of this social complexity and show that projects fail due to factors related to people rather than technical aspects. Crawford et.ál. (2006) considers that the social values of the agents and actors involved constitute a complex factor that affects project management. In rural development projects, this social dimension is basic and its neglect has been demonstrated in numerous researches (Korten, 1980; Uphoff, 1985; Cernea, 1992; Oakley et. ál., 1993; Chambers, 1997; Cazorla and De los Rios, 2012) to be the main cause of project failure. In the planning model WWP, this dimension of complexity is related to the ethical-social component, including behaviors, attitudes and values of people that relate to each other to promote, manage or direct projects (Cazorla et. ál., 2010).

This dimension is therefore the basis of the social system surrounding the development project and lays the "foundations" for the people come to work together, with commitment, confidence and personal freedom. In this dimension, behavioral skills are integrated with ethics and values as the most suitable elements to overcome potential moral conflicts in relation to the parties involved in the project (IPMA, 2010).

Understanding and assessing the level of complexity in rural development projects management will allow us to analyze the factors and conditions that influence the effectiveness of actions (Oakley, 1993; Whitty and Maylor, 2009).The tools for the analysis of complexity in project management has been associated with improved skills (Thomas and Mengel, 2008; Crawford, 2005; Duncan, 2006; Gapps, 2010). These tools incorporate the time constraints during the project life cycle (Shenhar and Dvir, 2007; Malach-Pines, Dvir and Sadeh, 2009), the social complexity of actors working together and the cultural complexity of the parties (Girmscheid and Brockmann, 2008).

However, all the patterns observed analyze the complexity of the projects from the expertise, regardless of the experienced knowledge of the parties involved. Nor specific models for rural development projects have been detected. The main objective of this research was to propose a methodology to assess the complexity of the project management of rural development and its effects on the behavioral competencies of the parties involved. The methodology was applied to a complex project in the Community of Irrigators LASESA (Huesca).

1. Research methodology

The results of this research are based on a methodology that incorporates different tools and information sources; first the collection and review of numerous secondary sources on the above concepts. Moreover, the research methodology incorporates empirical information obtained from a rural development project of high complexity in its management. The project is located in the Community of Irrigators LASESA (Huesca, Spain) and is implemented and managed since the planning model Working With People (WWP) (Cazorla et.ál., 2010; Cazorla and De los Ríos, 2012).The social base consists of 613 owners of the LASESA Community of Irrigators in Alto Aragón, of which 77% (471 owners) have participated in a renewable energy project promoted directly from the Community itself.

The *first instrument* –questionnaire #1 for the assessment of the complexity of the project– designed according to international standards (Shenhar and Dvir, 2007; Yongkui and Yujie, 2009; Martínez-Almela, 2011), considers ten factors in the complexity of management: the overall project objectives and results (F1); the parties involved and interrelationships between stakeholders (F2); the social and cultural context (F3); the innovation and general conditions (F4); the project structure (F5); the project organization (F6); the leadership (F7); the resources involved (F8); the risks and opportunities (F9); and the methods, tools and management techniques involved in its implementation (F10).These factors are assessed independently from the expertise, using a qualitative scale. Rating scale of complexity was: very high (4), high (3), low, (2) very low (1) and null (0).

For the collection and systematization of experience knowledge about the project, this questionnaire #1 was applied to the owners of the Community who have been members of the Board at some point in the life of the project and have participated in its management. The questionnaire was sent to the 76 owners, obtaining a response of 86% (66 owners), highly acceptable statistically speaking (Cea, 2001) and being unnecessary to increase the sample size. This high response from members of the Board of the Community is a guarantee of interest in the project. For the expert knowledge, was used the project management report of the Project Management Certification Body of Spain (Aeipro-OCDP[2]), entity responsible for the management of specific certification system developed by the International Project Management Association (IPMA, 2010).

A *second instrument* was designed to assess the project's impact on the behavior skills of the parties involved. For the design of this questionnaire #2, we considered the

2 OCDP, for its acronym in Spanish.

psychometric models (Leigh *et. ál*., 2007; Fouad *et. ál.,* 2009; Donovan and Ponce, 2009) and the tools to assess skills for project management (Gapps, 2010; Miller and Lessard, 2001; Flyvbjerg, 2002; Hodgson, 2002; Borgogni, Petitta and Barbaranelli*,* 2004; Winch, 2004; Cooke-Davies, 2004; Davies and Hobday, 2005). This tool considers seven behavior skills for project management: communication (1); negotiation, conflicts and crisis (2); creativity (3) teamwork (4); leadership (5); planning (6); and appreciation of values and ethics (7). This questionnaire was sent to the 613 owners of the Community, obtaining a response of 37% (229 owners), which was considered acceptable from a statistical point of view (Cea, 2001), so the sample was not expanded. These owners have collaborated and participated directly or indirectly in the project management and implementation tasks, including also the members of the Board.

Finally, a focus group workshop was held (Madriz, 2003) as part of the activities of the Project Management Certification Body of Spain (Aeipro), including the project Director and applying the same criteria of questionnaire #1 (Martínez-Almela, 2011; De los Ríos, Díaz-Puente and Martínez-Almela, 2011b).To measure the reliability of both instruments (questionnaires #1 and #2), we used the Cronbach coefficient (α) (Cronbach, 1951; Fernández, Rancaño and Hernández, 1999; Yang, Huang and Wu, 2011), eliminating from the statistical analysis the items that were not sufficiently reliable (Abad *et. ál*., 2011; Pardo, Ruíz and San Martín, 2009). In both questionnaires we used the Likert attitude scale (1932), commonly used in social sciences to assess perceptions and quantitative aspects from the agents (Barbero, 1993). Each item is structured with five answer options –completely agree (4), agree (3), neutral (2), disagree (1) and strongly disagree (0)–, scoring the most favorable attitude as higher. For the treatment of data, we used the statistical program SPSS V.19. Finally the integration of results –experienced knowledge of the affected population with expert knowledge– enabledus to obtain lessons and take appropriate action.

2. Analysis of the Community of Irrigators LASESA (CIL)

The study was conducted at the Irrigators Community LASESA (Huesca, Spain) that takes irrigation water from Cinca channel and dam El Grado. According to the Regulation of Public Water (España, 2001) the Community of Irrigators LASESA (CIL) is part of the General Irrigation Community of Alto Aragón, the institution responsible for the operation of all infrastructure serving water

management (Cgraa, 1998). Although, the Communities of Irrigators (CI) in Spain are more than a thousand years old, they remain a novelty in resource management and irrigation organization. They are institutions of long historical tradition and deeply rooted in the popular consciousness of Spain (Bolea, 1998).

The social complexity of these CI comes from their own conception: they are public corporations that bring together all the owners of an irrigation area, who share the same water intake, and join together mandatorily by law, for the nonprofit autonomous and common management and administration of public waters. It ist herefore a specific territory that enjoys a concession or right to use water to irrigate that land area. The right, concession or reservation of water use is attached to the land, not the landowner. The CIL was established in 1982 and was the first large irrigation network built in Spain (Bolea, 1998). Today, it is made up of 600 owners from five municipalities (Lastanosa, Sariñena, Sena, Villanueva de Sigenaand Castejón de Monegros).These CIL is divided geographically into five independent hydraulic sectors having the entire surface the same fictitious continuous flow (0.82 liters per second and per hectare at a pressure of 4.2 atmospheres). The CIL project management is of great complexity for a number of reasons, namely: the land area is 10853 hectares; the large water network, with more than 700 kilometers of pressure pipes, five pumping stations with 8900 kW of electrical power; the high number of intakes, 1654 hydrants for 1253 plots; and different infrastructure facilities necessary for the CIL to operate. Other factors that increase the complexity of management are: the high investment effort because of the large size and age of the irrigation network; the high diversification of crops with different irrigation demands; the need to modernize the facilities and of operating continuously the entire irrigation network; the lack of flexibility to deal with changes in demand; the mass introduction of vegetable crops, and the need to reconcile exploitation with the maintenance and repair of faults in the network.

One of the problems the CIL is facing at present is the age of facilities, which were designed and constructed in the second half of the 70s. Given this scenario, the CIL decided in 2001 to design a project of comprehensive competitiveness based on sustainability. This modernization project of the CIL included various sub-projects: a new irrigation dam (with a capacity of 9.85 Hm3), adaptation and modernization of irrigation infrastructure, automation of all hydrants in the community and the centralization of them in the offices; and a project of Renewable Energy (Solar PV Park) which would allow the CIL to produce income to avoid resorting to unusual spills (Figure 1).

Figure 1. Dam construction details (left) and photovoltaic Solar Park (right)

Source: LASESA Project reports, 2011

To finance the project the CIL obtains funding from the Irrigation Plan for Modernization of the Spanish Government. The CIL provides 33% of investment and 67% is given by the Ministry who grants a loan repayable over 25 years. Table No. 1 shows this investment of the CIL and the updated valuation of investments.

Table 1. Investments made from the Community of Irrigators LASESA (euros)

Investment	Year	Amount Invested
Purchase of the community headquarters	1987	56636
Workshop facility	1991	81426
Overhead crane of pumping stations	1992	18447
Modification of pumping stations	1993	1.308.491
Waterproofing of high rafts	1996	1.580.001
Regrowth of the ditch	1997	112560
Modification of the pipes (XXXII sector)	1998	1.378.798
Modification of the pipes (XXXI sector)	1999	1.944.311
Modification of the pipes	2000	620698
New irrigation dam project	2010	22.356.300
Renewable Energy Project	2006	100.000.000
Total investment		129.457.668

Source: LASESA Project reports, 2011

This system of projects –some still in progress– implemented from within the CIL, has overcome the traditional agricultural model, incorporating innovations that make farming profitable and generating additional revenue by selling energy. Figure 1 shows the details of construction of the dam and the Solar Park, which is currently producing an average of 25600,000 kwh/year and generating average revenues of € 8800000/year (with a return rate of 17% on equity provided for construction).

From the point of view of management, the CIL has a modern software tool (Gestar) for integrated management (management of the water network and management accounting) of the community. For economic management, the CIL has chosen a model where all costs are shared and all the owners pay the same for the price of water. For this reason, the CIL has designed a "water voucher", including water price and cost of electricity consumed by the community, with the price for all irrigators. Similarly operating costs and expenses of repair and facility maintenance are equally distributed. The CIL annually approves an investment program, with funds from the community to maintain and modernize the facilities.

3. Assessment of the complexity of the LASESA project management

After applying instrument #1 to 66 members of the Governing Board, using alpha of Cronbach, the reliability obtained was 0,80. As values over 0.7 are sufficient to ensure the reliability of the scale, the result indicates a high degree of internal consistency (Cronbach, 1951; Fernández, Rancaño and Hernández, 1999; Yang Huang and Wu, 2011). Table Nº2 shows the assessment results of the complexity of the LASESA project management. One hand, oriented to collect information from experienced knowledge, each member completed questionnaire #1, using the Likert attitude scale, with a total mean of 32 points from a maximum of 40, indicating high complexity.

On the other hand, the assessment of expert knowledge, obtained through the project management report of the OCDP –Project Management Certification Body of Spain–, valued the complexity with an average of 3 in the answers, also half total of 32 points, which indicates high complexity (Martínez-Almela, 2011).The factors assessed as bringing greater complexity are the organization of the project (F6) and stakeholders (F2); the many actors involved with different

responsibilities, many decision-making processes, the many meetings between the different stakeholders. The interrelationships between groups and divergent interests of the owners hinder agreements and increase the complexity of project management. Matching results are also observed in most of the analyzed factors.

Table 2. Assessment of the complexity of the LASESA project management

Factors	Experienced knowledge	Expert knowledge	Average rating
F1: Assessment objectives and results	3,38	3,00	3,19
F2: Stakeholders and integration	2,76	4,00	3,38
F3: Social and cultural context	3,29	3,00	3,14
F4: Innovation and general conditions	3,20	3,00	3,10
F5: Project structure	3,29	3,00	3,14
F6: Organization	3,56	4,00	3,78
F7: Leadership	3,29	3,00	3,14
F8: Resources	3,45	3,00	3,22
F9: Risks and opportunities	2,99	3,00	2,99
F10: Methods, tools and management techniques	2,79	3,00	2,89
TOTAL	32.00	32.00	31.99

Rating scale of complexity: very high (4), high (3), low, (2) very low (1) and null (0).

Source: prepared by the authors based on the sources used.

4. Evaluation of project effects on behavioral skills

Using also the Likert attitude scale, to estimate the effects of the project on behavioral skills, instrument #2 was applied to the sample of 219 owners who have participated directly or indirectly in the management and leadership tasks. After analyzing the reliability of results in SPSS, the variables of each competency element were purged, eliminating 51 items of the 89 initial ones,and obtaining a 38-items instrument with an overall reliability of 0,94. Subsequently, we performed an exploratory factor analysis using the extraction method of generalized least squares (Ximénez, 2006; Pardo, Ruíz and San Martín, 2009; Abad *et. ál.,* 2011) to get weighting loads of the variables and know the most important. The reliability of the competency elements (behavioral skills) are displayed separately in Table N.º 3, highlighting the high reliability in *Leadership*, *Communication* and *Teamwork* skills.

Items of "*Leadership*" (6 items) were as follows: 1) I found that I would like to assume more important duties; 2) I discovered that I am a reference for others in carrying out certain activities; 3) I have developed my ability to give directions to others by helping them to set goals; 4) During the activities in the project I prefer to take the lead; 5) I have improved my leadership skills, influencing the actions of others effectively; 6) I have provided leadership and motivation to others.

Items of "*Communication*" (6 items) were as follows: 1) I have learned to communicate with others and listen with an open and positive attitude; 2) I have learned to communicate consistently and in a timely manner; 3) I have learned that you should be careful when deciding who receives the information; 4) It has helped me to adequately express my ideas, opinions or viewpoints; 5) It has helped me to talk before an audience; 6) It has helped me capture the attention of people and make myself understood.

Items of "*Teamwork*" (6 items) were as follows: 1) It has increased my effort to find out how other partners in the project are working; 2) It has increased the time I dedicate to know my organization; 3) It has encouraged me to be curious about many things around me; 4) It has helped me know how to guide my colleagues in their activities; 5) It has helped me relate to stakeholders; 6) I have learned to consult with others and consider their proposals and views.

Table 3. Reliability of the assessment results of the effects on the development of skills

Behavioral skills	Alpha	Number of items	Mean
Leadership	0,93	6	2,47
Communication	0,86	6	2,56
Teamwork	0,84	6	2,82
Conflict and crisis negotiation	0,65	6	2,36
Creativity	0,55	3	2,68
Appreciation of values and ethics	0,37	7	2,36
Planning	0,28	4	2,74

Source: prepared by the authors based on the sources used

Table N°4 shows the results after applying instrument #2. In general, CIL members say the project has been a means allowing them to develop their behavioral skills (with an average value of 2.77). Analyzing the responses separately, we found that the development of personal skills has been more significant (3.16) between farmers and irrigators who have worked together as

members of the Governing Board of the Community of Irrigators LASESA (direct participants) compared to beneficiaries who have indirectly participated (2,36). This allows us to say that the participation and joint efforts within the project are a means to develop and improve personal and professional skills.

Table 4. Evaluation of the effects of the LASESA project on the development of skills

Skills	Direct participants*	Indirect participants**	Average rating
Negotiation.Conflicts and crisis.	3,60	2,49	3,05
Leadership	3,42	2,19	2,86
Communication	3,42	2,22	2,82
Teamwork	3,26	2,44	2,85
Creativity	3,14	2,19	2,67
Appreciation of values and ethics	2,95	2,66	2,81
Planning	2,39	2,34	2,37
Average	3,16	2,36	2,77

Rating scale from 0-4: completely agree (4), agree (3), neutral (2), disagree (1) and strongly disagree (0). * Direct participants: Owners participating in the project as part of the Community of Irrigators. ** Indirect participants: those involved in providing capital but not work in the CIL.

Source: prepared by the authors based on the sources used.

According to the results obtained, the biggest developments are focused on improving the skills of negotiation, conflict and crisis (3,60), leadership (3,42), communication (3,42) and teamwork (3.26). These skills also stand out as having results with high reliabilities.

Conclusions

Any item that depends on human behavior has an impact on professional practice. The present case involves a novel application of the model Working With People (WWP) to complex projects oriented to the management of resources from the communities living in the territory. Water management, the common use of land resources, management and autonomous organization of the irrigation communities and their long historical tradition frame a rural development project of high technical, contextual and social complexity.

The practice developed as a team by members of the Irrigators Community itself has allowed over time to connect knowledge (expert and experienced) to

undertake a unique collective action: a common rural development project (a great investment, 138 million euros), where besides the technical and economic value of goods and services produced, the value of the people involved is appreciated, namely those who have participated and developed in the context of the project. We are therefore faced with a WWP model validation (Cazorla and De los Ríos, 2012) that has influenced the improvement of personal skills (behaviors, attitudes and skills) in the project management (IPMA, 2010) of a community.

The present case goes beyond the traditional focus from the "technical complexity" of rural development projects and the transformation of irrigation, based on engineering, scientific rationality, and mostly with downward actions (Bond and Hulme, 1999). Although the technical complexity of the project is obvious, other aspects of other dimensions of complexity show greater relevance.

The "organizational and structural complexity" lies behind the CIL institution itself as the operating platform to address the bottom-up approach in rural development project management, encouraging the participation of local stakeholders and taking into account the reality of the territory. The demanding need for coordination from the CIL, transparent and detailed information to the parties, the many responsible decision-making processes, meetings with different stakeholders are all elements that increase complexity. As in other rural development projects, an organizational structure is required as the main operating element for territorial cooperation between agents and institutions. From this dimension, the CIL is an example of a structured organization that may influence sustainable rural development based on the use of local resources.

As in other studies (Jones and Deckro, 1993; Nonaka, 1994; Stacey, 1995; Crawford *et.ál*., 2006; Hogue and Lord, 2007; Koerner and Klein, 2008; Yongkui and Yujie, 2009), the dimension of "social complexity" is the one involving greater complexity. Numerous studies (Korten, 1980; Uphoff, 1985; Cernea, 1992; Oakley, 1993; Chambers, 1997; Cazorla and De los Ríos, 2012) confirm that the existence of a development project is senseless without its social and human environment. The different values and interests of the parties involved constitute a highly complex factor that affects the management of a rural development project.

Although the results obtained show that in LASESA difficulties have been gradually overcome, numerous social dimension problems have arisen. Aspects related to social complexity derive from the technological (decisions and agreements of the owners over the facilities); contextual (political and financial

negotiations and agreements with subcontractors), and organizational complexity (cost sharing model, decisions on water price).

These reasons highlight the need for greater understanding of the relationships between the dimensions of project complexity. Rather than having a set of tools and techniques to manage projects, the challenge is to have the necessary skills, attitudes and abilities to overcome the problems that arise in the management of complex projects (Whitty and Maylor, 2009).

We are at a two-way street: on the one hand the people and their relationships make the management of a project complex; on the other hand, complex projects pose difficulties and problems to the people involved. Overcoming these difficulties, on the basis of cooperation, enhanced dialogue and the sharing of different points of view may lead to personal enrichment and the development of innovations that can improve the skills of people working together.

Thus, the management of development projects within a complex context means including an integrating component of Social Learning, allowing to provide the project with relations between the parties involved, ensuring spaces and social processes that may lead to learning from each other (Cazorla and De los Ríos, 2012). This distinction leads us to conclude that the models of rural development project management, in addition to the technical-economic assessment of project results, should incorporate instruments to assess the effects on behavioral competencies of people, stating that "we must not necessarily do everything we can technically do" (Ramos, 1993).

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