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Contribution of Award-Winning Research to the Visibility of Science on a University Campus

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ABSTRACT

This article presents the experience in the preparation and presentation of results to the call for awards of the Ministry of Science, Technology and Environment, evidence of the impact achieved. The methods of science were applied such as: analysis and synthesis, historical and logical, hypothetical deductive; within the empirical ones: observation, document review, interview, training actions, conducting scientific sessions, giving conferences and joint elaboration. The scientific results with the potential to opt for the call were determined by reviewing documents, interviewing teachers-researchers, holding scientific sessions on the subject and giving lectures on the methodological procedure.

Keywords: Science and Technological innovation; Prizes; Scientific results.

INTRODUCTION

This article highlights one of the indicators of the Science, Technology and Innovation process as one of the pillars of the management of substantive processes in municipal university centers. As innovation is a social process, the inadequacies of the educational system and high levels of poverty and social inequality affect the development and performance of innovation systems. The links between universities and public Research + Development (R + D) centers, with the productive sector, are mostly based on obtaining information and training and not on forms of interaction to reverse specific problems, through the application of results. scientists, that is, closing the research cycle [1]. The evaluation of the impact of science and technology constitutes a strategic need, as a way to verify the development of a country, its scientific policy, as well as its management in terms of society and the human beings who live in it [9]. Given the new development perspectives depending on the local, [8] indicates the need for greater integration of the Municipal University Centers with the productive sector, increasing the connections between the different actors outside the municipality, which enhances the development of the learning and

innovation, from the increase of the scientific debate in the locality, which means increasing the rigor in the analysis of the problems [7]. sustains that the research bases a broad innovation approach or “DUI innovation mode” (doing, using, interacting) in which learning is key [5-6]. He argues in favor of innovation systems that favor social inclusion and care for the environment. Technological trajectories should benefit the human groups involved, expand their knowledge, improve their quality of life, among others [3].

Achieving relevance in science and technology has its starting point in the needs of economic, social and cultural development of the territory, these guide the substantive processes of science, technique and postgraduate that are executed in the Municipal University Centers (CUM); In these, the search is encouraged based on the need to possess knowledge and they drive action. The learning needs determine the high-level continuing training activities, based on the demand of the group of professionals graduated from a territory, who become the main clients of the postgraduate studies of their university. This activity enhances interaction with the university environment and provides new knowledge to those involved in research

and development projects, in turn, it is a search for new research needs and opportunities, research projects; so that an ascending cyclical and interactive process is established.

On many occasions, quality in education centers has been related to terms such as: prestigious centers or centers of excellence, certified or accredited, with good economic resources and good infrastructures or good facilities, centers with excellent academic results, with good teachers and great leaders, with the satisfaction of parents and students and with evaluation of all kinds: of the system, of the educational processes, of the results.

As part of the dynamics of science and technological innovation management, the scientific visibility indicators express the relevance and relevance of the research results. That is why achieving territorial recognition is a goal of the Cabaiguán CUM, an aspect that has been projected in the strategic planning of the institution in different stages, which has required the execution of different training actions for the faculty.

This article proposes to expose the experience in the preparation and presentation of results to the call for awards of the Ministry of Science, Technology and Environment, evidence of the impact achieved.

Developing

To respond to the objective, different science methods were used, addressed by Lanuez, Martínez and Pérez (2010) [4]. They are summarized below:

Analysis and synthesis: analysis of the literature on science management, quality concepts in educational institutions, technological innovation and its link with the relevance of substantive processes in universities.

Historical and logical: allows the evaluation of the logical behavior of the results of the science management in the University Center of Cabaiguán and particularly of the historical behavior of the awards granted by the Ministry of Science, Technology and Environment (CITMA), as a way to certify the quality of the investigations carried out and consequently achieve the recognition of the institution. Hypothetical and deductive: it is assumed that if the faculty is trained through scientific sessions, conferences, it is possible to increase the visibility of the scientific results obtained, in this case obtaining prizes awarded by CITMA.

Within the empirical methods:

3.1.1.Observation: for the evaluation of the skills of teachers in the preparation of files for the CITMA calls and after training them, check the appropriation of said skills.

3.1.2.Document Review: for the review of scientific literature, science and technique balance reports, requirements of CITMA calls for Academy and Technological Innovation Awards, results of research and innovations carried out by undergraduate and graduate students.

3.1.3.Interview: with the deputy director of science and technology, the deputy director of professional training in the former University Branch of the Ministry of Higher Education, professors-researchers, undergraduate students, innovators with the aim of specifying the relevance and impact of the results obtained scientists.

3.1.4.Training Actions: holding scientific sessions, giving lectures to teachers and researchers in the territory with learning needs of the methodology.

3.1.5.Joint Preparation: for the preparation of the dossier for the call based on the requirements established by CITMA for the different awards.

The starting point was the process map that characterized the management of science and technological innovation in the University in the stage (2014-2016), (see figure 1), where the sub-processes of science and technological innovation are synthesized, one of them corresponds to scientific visibility, whose realization through indicators is expressed through the Academy of Sciences and Technological Innovation awards. The flow diagram synthesizes the steps that are executed for the materialization of the management of science and technological innovation in the CUM of Cabaiguán, figure 2.

From the observation, review of documents (FUM, 2014) [2] a) and interviews, deficiencies were found in the preparation of the cloister for the presentation of files to opt for the prizes awarded by CITMA, however, there were scientific results that they could aspire to these prizes, obtained by teachers, innovators with the participation of students.

As part of the socialization of the calls and exchange with the faculty, 5 scientific sessions were held with the participation of a total of 30 professors. They focused on the development of a conference that addressed the subject.

3.1.6.General Objective: Apply the methodology established by the Ministry of Science, Technology and Environment for the preparation and presentation of files in the Academy and Technological Innovation awards option, as appropriate to the research results of professors and researchers.

3.1.7.Contents: Introduction. Classification of the awards announced by CITMA. Purposes and requirements

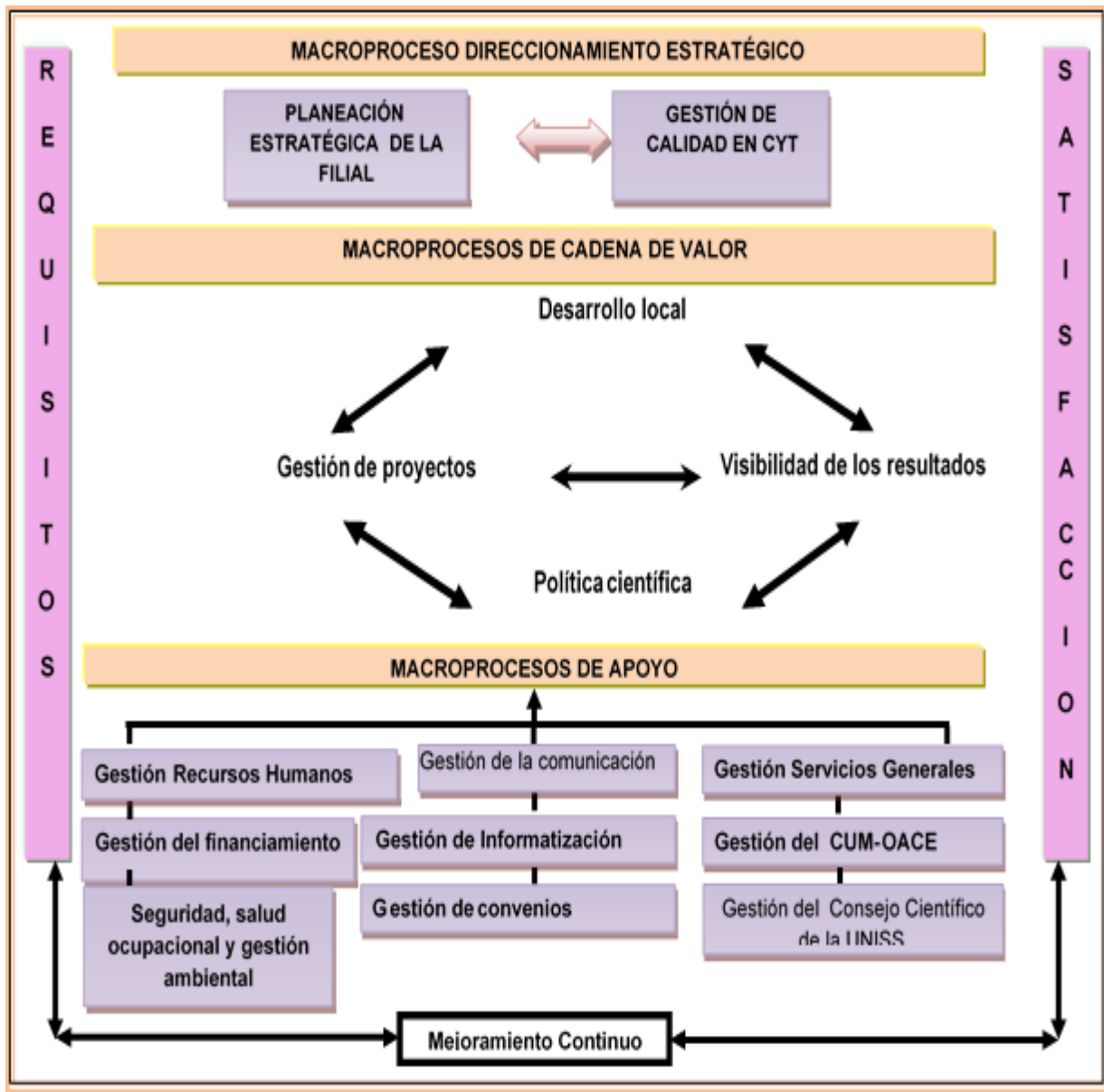
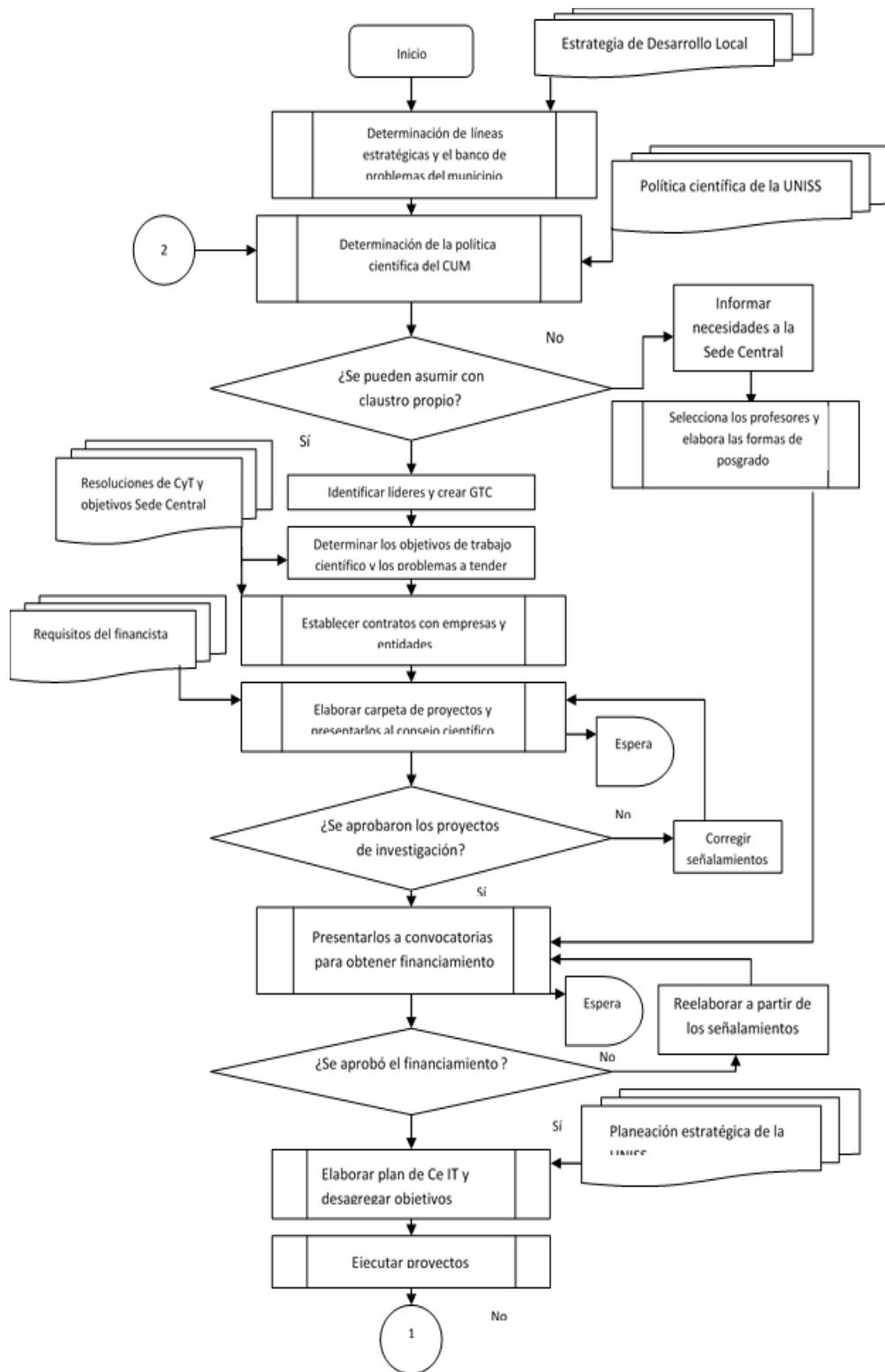


Figura1: Mapa de proceso, tipo de proceso: Ciencia e Innovación Tecnológica. Fuente: FUM (2014) b)



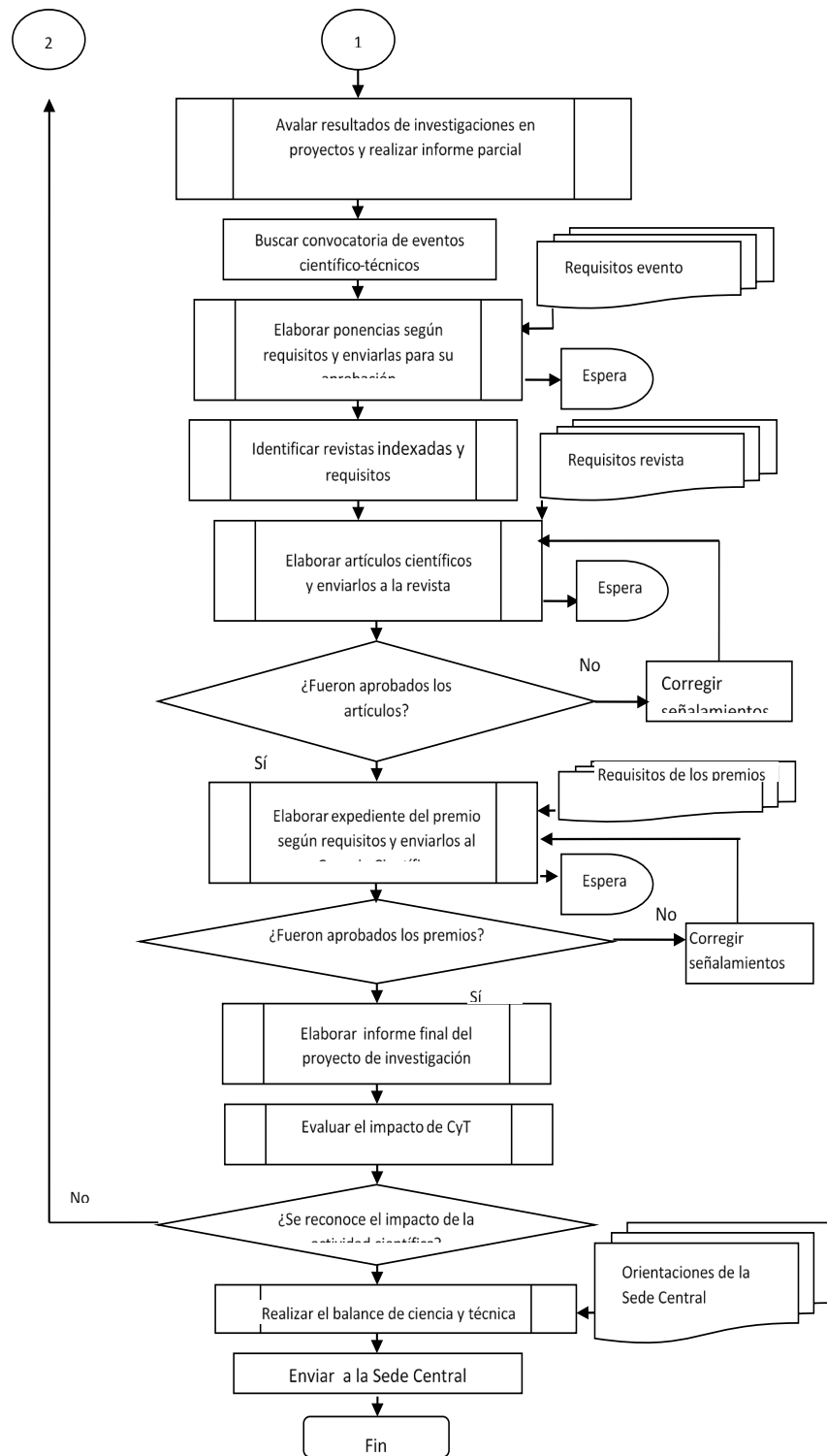


Figura2: Diagrama de flujo del proceso de Ciencia e Innovación Tecnológica. Fuente: elaboración propia.

established in each award. Examples of awards received at the Municipal University Center. Evaluation methodology for each award.

3.1.8. Media: Use of slides in digital format, award files obtained at the institution.

The scientific sessions were held in the school years 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016. All this allowed, through the joint elaboration method with the teacher-researchers, the obtaining of prizes awarded by the CITMA with a behavior as shown in table 1.

These results (tables 1 and 2) show that the improvement of one of the indicators of science and technological innovation management has been achieved in practice: the results of awarded by the Ministry of Science, Technology and Environment, which that evidences the relevance of the results of the investigations carried out by the group of professors of the university campus.

Table 1: Premios otorgados por el CITMA (2009-2020)

Año	Premios		
	Academia De Ciencias	Innovación Tecnológica	Total
2009	1	1	2
2010	-	-	-
2011	-	3	3
2012	-	2	2
2013	-	3	3
2014	1	4	5
2015	-	4	4
2016	-	2	2
2017	1	2	3
2018	1	2	3
2019	-	-	-
2020	-	1	1
Total	4	24	28

Conclusions

The increase in results in the calls made as of 2012 is significant, determined mainly by the results of investigations of teachers in the completion of master's thesis, the completion of study of undergraduate students, innovations in companies in the territory and in university processes; as part of research projects or problem bank in local institutions. The experience presented shows the viability of the flow diagram for the management of science and innovation in a university campus, where the training carried out to the faculty and the method of joint

Table 2: Trabajos premiados por el CITMA.

Año	Resultado Premiado
2009	1. Acciones socioculturales de la sede universitaria municipal de Cabaiguán para el desarrollo local. Colectivo de autores.
	2. Modelo de Psicoterapia integrativa para el tratamiento de pacientes con trastornos neuróticos. (Academia)
2010	-
2011	1. Máquina procesadora de forraje para alimentación animal modelo Yabray. Colectivo de autores.
	2. Sistema de información para contribuir a la eficiencia de la explotación del transporte en la empresa Transcupet. Colectivo de autores.
	3. Libro Silverio Blanco Nuñez: campesino rebelde. Autora. Daisy Siriano.
2012	1. Reingeniería del proceso de fabricación de las tamboras de freno del tractor agrícola Junz 6M. Colectivo de autores.
	2. Monumentos, sitios, tärjas y señalamientos del municipio de Cabiaguán. Colectivo de autores.
2013	1. La décima en Cabaiguán hasta el 2012. Libro digital y plegable para conocer, promocionar y preservar el patrimonio cultural local. Colectivo de autores.
	2. Estrategia metodológica para la mejora de la culminación de estudios en la Filial Universitaria Municipal de Cabaiguán. Colectivo de autores.
	3. Mejoras de la gestión de residuales en la fábrica Pasteurizadora de Sancti Spiritus mediante un sistema de "Producciones más limpias". Colectivo de autores.
2014	1. La Cátedra Patriótica Militar Internacionalista de la Filial Universitaria Municipal de Cabaiguán. Su aporte a la cultura universitaria y comunitaria. Colectivo de autores.
	2. Metodología para el diseño, implementación y evaluación del proyecto educativo central en la Filial Universitaria Municipal de Cabaiguán. Colectivo de autores.
	3. Sistema de acciones para la mejora de la gestión del postgrado en la Filial Universitaria Municipal de Cabaiguán. Colectivo de autores.
	4. Estrategia educativa dirigida a la preparación de los profesores para la prevención de la violencia juvenil en la Filial Universitaria de Cabaiguán. Colectivo de autores.
	5. Estrategia educativa dirigida al proceso de comunicación entre el grupo de interés y los casos críticos. (Academia). Colectivo de autores.
2015	1. Construcciones representativas de Cabaiguán. Libro digital para conocer y promocionar el patrimonio arquitectónico local. Autores: Colectivo de autores.
	2. La comunicación interpersonal por una longevidad satisfactoria desde una localidad cubana. Colectivo de autores.
	3. Diccionario de Autores de la Literatura Infantil Cubana. Colectivo de autores.
	4. Procedimiento tecnológico para el mejoramiento del proceso de fabricación de piezas de repuesto mediante el enfoque Harrington. Colectivo de autores.
2016	1. Estrategia para la labor educativa desde la extensión universitaria con los estudiantes de la PLI en el Centro Universitario Municipal de Cabaiguán. Colectivo de autores.
	2. Por la salud y la cultura Ambiental en las comunidades de Cabaiguán. Colectivo de autores.
2017	1. Acciones de capacitación y socioculturales de la Cátedra del Adulto Mayor en Cabaiguán. Colectivo de autores.
	2. Modelo de gestión educativa estratégica de orientación para universidades médicas cubanas. Colectivo de autores.
	3. Diccionario de autores de la literatura infantil cubana, premio nacional: Academia de Ciencias de Cuba. Colectivo de autores. 1o de marzo de 2017.
2018	1. Estrategia educativa para la capacitación en la protección del recurso agua. Colectivo de autores.
	2. Diccionario de la literatura cabaiguanense (Academia). Autora: MSc. Mirta Estupiñán González.
	3. La formación continua del docente universitario hacia el rol de la profesión docente. Colectivo de autores.
2019	1. Evaluación de las acciones para la mejora de la innovación agropecuaria local en Cabaiguán. Colectivo de autores.

preparation of the files to be presented to the awards calls, allow materialize presented results.

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