PRELIMINARY ASSESSMENT OF THE COMMUNICATION MECHANISMS USED IN THE VIRTUAL ACADEMY OF THE SEMI-ARID TROPICS (VASAT) PROJECT[1]

María Marta Albicette[*], *Rosana P. Mula*[**], *Ram Naresh*[**], *Kiran Yadav*[**]

[*]National Agricultural Research Institute (INIA)
President: Álvaro Roel
[**]International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)
Director General: William D. Dar

Key words: agriculture, information and communication technologies for development (ICT4D), extension, Reflective Appraisal of Programs (RAP), qualitative research
Słowa kluczowe:rolnictwo, technologie informacyjne i komunikacyjne na rzecz rozwoju (ICT4D), doradztwo, Reflective Appraisal of Programs (RAP), badania jakościowe

A b s t r a c t: Small and marginalized farmers of many developing countries in semi-arid tropics depend primarily on extension services for information. Information and Communication Technologies for Development (ICT4D) have shared actions to develop specific mechanisms and tools, to consider how they are applied, and to assess their outcomes and impact. Analysis of an eight-year extension project in 21 villages of Andhra Pradesh, India suggests that the development of a multimedia approach, which considers both the local farmers´ organization and context, brings about good results. Such outcomes are related not only to the technological frame, but also to economic, social, and ecological issues. A qualitative research study which takes into account the opinions of farmers and local people using the theoretical approach of Reflective Appraisal of Programs (RAP) is presented. Implications and lessons learned are considered for the project to be continued or for application in further ICT4D projects based upon the transfer of innovations and knowledge.

INTRODUCTION

The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) is continuously working for new and effective linkages between research and extension subsystems in the overall agricultural knowledge system to improve access to information. Economic, social and political life in the 21st Century will be increasingly dependent upon digital devices and those without Information and Communication Technologies (ICT) will be excluded [Heeks 2008, p. 26].

[1] Acknowledgemnts. The authors wish to acknowledge the VASAT Project team and its leader, especially mentioned, Dr. Balaji. Our profound gratitude to the people of Addakal and AMS Center for sharing their time, allowing us to carry out the interviews and meetings in the field.
Paper was presented at the 19th Congress of the International Farm Management Association (IFMA), Warsaw (Poland), 21-26 July 2013.

According to Balaji et al. [2007] and Rudgard et al. [2011], the Information and Communication Technologies (ICT) for Development (ICT4D) is an umbrella that includes computer hardware and software, digital broadcast, telecommunications technologies, social networks, interfaces for sharing information through the Internet, TV, radio, mobile phones, cloud computing facilities, and geographic information system (GIS). It also includes the policies and laws that govern their widespread use. This digital technology domain intersects with development goals in the search for a delivery mechanism [Heeks 2008, p. 27].

A "triple helix model" conceptual framework was used at ICRISAT to emphasize three strands to be observed as a unique chain[2]. Firstly, there is the need for useful knowledge. Secondly, the ICT4D model is emphasized. Thirdly, an open-distance paradigm is required in an effort to personalize learning for the masses. This also takes into consideration a future when distances will be shortened by access to technology.

ICRISAT, in collaboration with agricultural research institutions and aligned with the Consultative Group on International Agricultural Research (CGIAR) policies, initiated the Virtual Academy for the Semi-Arid Tropics (VASAT) Project. The objective was to develop opportunities to exchange knowledge among researchers, extension workers and farmers, focusing on the preparation of the community to cope with drought [Dileepkumar et al. 2006]. The project involved a platform for communication, considering that preparedness is better than relief and that the communication systems would necessarily combine top-down and bottom-up approaches, with the paradigm of open and distance learning , and ICTs applied to rural development [Balaji et al. 2007, p. 3].

Climate change is one scenario that continuously affects farmers, and the poor have created incomes both around technology and via technology [Heeks 2008, p. 29]. An assessment of mechanisms and tools used in extension initiatives such as the VASAT Project will yield further support for the work and might also provide insights for various interest groups working with ICT4D.

OBJECTIVES

The research focused on a preliminary assessment of the various communication mechanisms used in the VASAT project taking into account the framework of ICT4D in agricultural information. It describes the experience and analyzes its activities, the potential of the mechanisms used and the results. Specific Objectives:

– describe and assess the different communication tools and mechanisms used from the perspective of rural farm households,
– suggest areas of improvement, if there are any.

VILLAGE SETTING

THE PLACE AND THE PEOPLE

Addakal is a "Mandal" (country subdivision) in Andra Pradesh, one of the poorest regions in India. It covers 196 km^2 and consists of 21 villages whose economy is based upon agriculture and livestock [Sreedhar et al. 2009, p. 28].

[2] For more information about the "triple helix model": http://vasat.icrisat.org/?q=node/96

The region has a population of 46,380, of which 23,596 are male and 22,784 are female. It faces frequent droughts and migration has increased during the last 10-12 years. People look for work away from their farms during the summer time, searching for better income [Sreedhar et al. 2009, p. 28]. Institutional presence through development or extension organizations is weak. However, the strongest bonds to exchange information can be observed among farmers, and between vendors and farmers [Balaji et al. 2007, p.5].

In 2002, ICRISAT was involved in a governmental development program in Addakal, providing seeds and extension services. A federation of female, self-help, microcredit groups called Adarsha Mahila Samaikya (AMS) was a strong actor with 8,000 members from 21 villages in Addakal Mandal, Mahbubnagar district of Andhra Pradesh. Since 2004, ICRISAT and AMS have worked together in the VASAT Project using methodologies related to the ICT approach to foster drought preparedness. A hub-and-spoke model was designed, using local language (Telugu) [Sreedhar et al. 2010, p. 3]. At the beginning, basic ICT infrastructure facilities were used: a PC-based computer network with low cost Internet access in the Village Knowledge Centers (VKCs). Later, video and audio conferencing and mobile phone for two-way communication to ensure local knowledge acquisition was introduced. After successful pilot testing with three villages in 2004, it was up-scaled to eight in 2008, covering farmers in all the 21 villages in Addakal [Sreedhar et al. 2009, p. 30].

VASAT: COMMUNICATION TOOLS AND MECHANISMS

The VASAT project worked with drought preparedness based on an integrated approach for improving capacity in rural communities. An interface of ICT and distance-learning methods over a short period of time is used [Lavanya et al. 2010, p. 2]. The needs based content was prepared for the farmers and delivered in the local language[3].

Since 2004, the project has been developing access to ICT tools through providing the eight VKC with PCs and building the AMS through promoting a video conferencing infrastructure. ICRISAT provides technical information and financial support for data collection, and AMS provides the facilitators who convert local terminology into a scientific one and vice-versa, serving as a bridge between ICRISAT, AMS and farmers [Dileepkumar et al. 2005]. The role is being performed by eight Village Network Assistants (VNAs) trained by ICRISAT in ICT management.

The VKCs were designed based on the hub-and-spoke dynamics. Based on demand, the session schedules are prepared and provided in advance [Lavanya et al. 2010, p. 5]. The farmers´ queries are answered; if possible with the ICRISAT expert during the video conferencing session, or referred to a senior expert and the answers communicated to the VNAs. The facilitators translate the content into the local language. After the conference, the content is validated in order to build repositories at the VKCs and queries are uploaded to the Internet "aAqua" Forum[4] [Sreedhar et al. 2010, p. 3]. As the ICT initiatives progressed, the VNAs evolved as knowledge intermediaries.

Since 2009, a field investigator has been helping interaction between VNAs and farmers, answering questions about agricultural problems.

The project developed coloured maps using water budgeting measured by the farmers and GIS tools to facilitate drought preparedness [Patwar et al. 2009, Rudgard et al. 2011].

[3] More information about the VASAT Project: http://www.icrisat.org/vasat

[4] More information about the Forum: http://www.aaqua.org

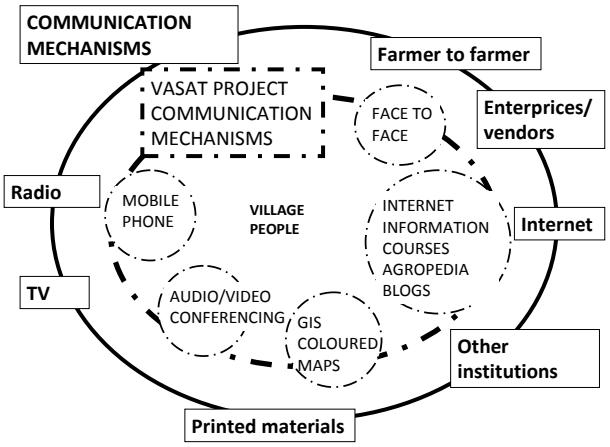

Figure 1. ICT4D mechanisms and tools used in the VASAT Project
Source: own study

According to Sreedhar et al. [2009, p. 9] the maps are easily understood by rural people and at the same time helpful for drought-related decision-making.

Recently ICRISAT has started using an experimental web-mobile phone communication platform. As video conferencing requires volunteers to move to the AMS Center, the project set up audio conferencing facilities in the villages, enabling several people to interact with the experts [Lavanya et al. 2010, p. 4].

The mechanisms used in the Project are shown in Figure 1. The Internet provides access to Agropedia, VASAT´s blog, wiki, courses and activities related to the project [Kaur et al. 2009, p. 2]. The Internet connection was used by rural people for other purposes such as weather and market information, package of practices, production practices and education etc.

METHODOLOGY

A preliminary assessment of the VASAT Project through qualitative research is presented. The research brings out elements about people´s perception and knowledge gained during the project. Analysis and systematization of secondary information, direct observation, semi-structured interviews and group meetings were used to elicit the stakeholders' opinions.

Evaluation is a management tool where the analysis of activities and their corresponding effects allows for reaching conclusions in respect of the objectives [de Hegedüs 1995, *Pautas para ...* 1997]. It is also a process to determine relevance, efficiency, effectiveness and impact of the project [Villarraga 1998]. The theoretical approach of Reflective Appraisal of Programs (RAP) [Bennett 1982] has been efficiently used in the evaluation of technology transfer projects [Albicette et al. 1999, de Hegedüs et al. 2000, Guerra, Zocco 2006], using different ICT tools. According to that model and from Bennett's hierarchy model for planning and evaluation [Bennett, Rockwell 2000].

Table 1. Addakal Mandal: Interviews and meetings

Village	VNA	Activity	Nº Female	Nº Male
Nijalapur	Ms. Ramayswaramma	SSI & GD	5	3
AMS Center		GD	21	5
Komireddypalli	Ms. Chandrakala	SSI & GD	16	-
Janampet	Ms. Vemmalmma	SSI & GD	11	1
Vemula	Ms. Narmadamma	SSI & GD	15	11
Kandur	Ms. Lalithamma	SSI	2	-

SSI: Semi-structured interviews, GD: Group Discussion
Source: own study

Seven levels of a Bennett Hierarchy Model of Planning and Evaluation identified were identified as: I - Input, II – Activities, III – output, IV – Reactions, V – Knowledge and Attitude change, VI – Practice change, and VII – Satisfaction of the services. The study was geared to the first five levels, focusing on five villages and the AMS Center (Tab. 1). Ninety interviews were carried out to know about relevant issues [Taylor, Bogdan 1986].

The respondents were farmers, VNAs, and AMS members attending the meetings and farmers interviewed in the field (Tab. 1). Interview dates were fixed in advance and conducted personally with simultaneous translation from the Telugu language. Meetings and interviews lasted approximately two hours. Notes and photos were taken and direct observation data were documented in a field diary [Taylor, Steele 1996].

Based on our understanding of the facts and related reviews, a pre-tested-structured questionnaire was prepared to collect data. A semi-structured interview schedule was also developed to investigate in depth various dimensions of the study. Data collection tools were prepared by giving due consideration to various socio-economic, personal, communication and farming variables.

RESULTS

A matrix summarizing the opinions of people and AMS members is presented in Table 2. An overview of outcomes in technological, economic, social and institutional components, regarding the different tools and mechanisms used in the VASAT Project is offered. The empty cells in the matrix indicate no comment about that item.

CONCLUSIONS AND LESSONS LEARNED

The project appears to have good results as some outstanding outputs were clearly seen in the field and perceived during the interviews such as: 1) the farmers have more agricultural information concerned with technical issues and know how to manage technology better; 2) they have learned to save agricultural inputs and still have better yields; 3) they incorporated new knowledge using the Internet, mobile phones, coloured maps and other tools; 4) they learned how to deal better with vendors; 5) capacity building helped people get better jobs.

Table 2. VASAT project results in 5 villages and AMS Center (K&U: Known and Used)

Components	Nijalapur Village	Komireddypalli Village	Janampet Village	Vemula Village	Kandur Village	AMS Center
Technological						
Video/Audio Conferencing	K&U	K&U	K&U	K&U.	K&U	Infrastructure
Internet	K&U	K&U	K&U.	K&U.	K&U.	K&U.
Colored Maps	K&U Fixed on the walls	NIL	Fixed on the walls	Fixed on the walls	Fixed on the walls	K&U
Cell Phones	K&U	For the future	For the future	NIL	K&U	K&U
Social						
Field Investigator	K&U. Good relation with farmers	K&U	K&U. Good relation with farmers	K&U	NIL	K&U
VNAs	K&U	K&U	K&U	K&U	K&U	K&U
Relationships	Farmer-to-farmer	NIL	Farmer-to-farmer	NIL	NIL	Farmer-to-farmer
	Farmer-vendors	NIL	Farmer-vendors	Farmer-vendors	NIL	Learned to negotiate
Gender issues	No gender differences	NIL	NIL	Some gender issues arose	NIL	No gender differences (Female 50%, Male 50%).
Labor	NIL	New jobs	New jobs	NIL	Men look for work	Rural employment grantee
Education and health	NIL	Internet for educational purposes	NIL	NIL	NIL	Programs: Livelihood, physical handicap, old pensioners, health insurance
Acquired knowledge	Learned a lot	Learned a lot	NIL	Learned a lot	NIL	Learned a lot
Economic						
	Aware of seed quality	Micro-financial groups	Micro-financial groups	NIL	NIL	Dairy cooperative, handloom, restaurant, self-help groups
	Better yields	NIL	Costs reduced	NIL	NIL	Costs reduced. Incomes increased.

Table 2. Cont.

Institutional						
	No extension	NIL	No extension	No extension	NIL	Focus of rural development. Relation with Bank.
Ecological						
Topics for further research	Drought, Pests Management	NIL	Water management	Irrigation. Nutritional crops deficiencies	NIL	Non pesticide management.

Source: own study

TOOLS AND MECHANISMS USED

The mechanisms and tools used for communication during the Project, which people were really acquainted with, were as follows: video/audio conferences, coloured maps, Knowledge Centers with PCs, VNAs, field investigators, capacity building, and mobile phones. It is suggested that a final assessment should be conducted, for there is a need to quantify the use and impact of each tool.

In line with what was expressed above, farmers used coloured maps for decision- making in relation to drought preparedness. The advice given by the field investigator or the VNAs people sent through the hub-and-spoke mechanism was used for quick response to agricultural problems.

As observed, farmers have internalized the knowledge using the information they had acquired. An in-depth study could be planned on the decision-making process of farm households in the study area.

ECONOMIC OUTPUTS

The farmers learned technical issues, which allowed them to have better farm management. To date, they have become critical towards seed quality, water availability and management. Better decisions were taken, such as which crop to grow based on science. They are concerned about reducing their costs, so they have been instructed on the benefits of precision agriculture such as input utilization to save money without sacrificing productivity. Farm households also use the Internet for other agricultural support like accessing market and price information and educational purposes. As a result of being better informed, farmers were in a good position to deal with vendors and save resources.

SOCIAL ISSUES

People in general, learned to improve their negotiation skills. This contributed to upgrade their abilities as a result of the various capacity building activities included in the project. The Knowledge Centers also opened doors to the young members of the farm household to have better access to information and educational issues.

As a result of the implementation of the Project, women were empowered to face new challenges. It was ensured that VNAs learned about technological issues, got new jobs or were involved in start-ups. In general the gender issues didn't surface though there were exceptions.

ROLES AMONG THE PEOPLE PARTICIPATING IN THE PROJECT

It was clear that the VNAs took pride in doing good job. This can be used as performance indicators for conducting impact investigations.

The KCs are already installed and can generate interactive information among farmers, promoting innovation. Consequently, capacity building to enable the VNAs as facilitators for development, upgrading knowledge, attitudes and aptitudes is needed.

Farmers have no time to attend meetings and courses, so new ICT tools for easy access to information, as well as effective methodology to be applied by the field investigators are also need of the hour.

A cordial relationship among AMS members, VNAs, field investigators, farmers, and ICRISAT researchers was observed. Institutions have to be aware of the importance of these, value them highly, and take into account that extension workers are part of the success of projects. A strong mechanism of coordination among actors by developing a network for faster information access is necessary.

HORIZONTAL AND VERTICAL LINKAGES

Dialogue and discussion at horizontal and vertical levels are important for facilitating community knowledge. ICRISAT needs to know first-hand information about the farmers´ problems for a better reach of the technological information proposed. The vertical linkages were enhanced through various capacity building activities. AMS members called ICRISAT to work together on the VASAT Project, and during the implementation, new mechanisms of communication emerged. It is noted that impact can be greater with better horizontal interactions with the user friendly ICT tools. Participatory research could be useful with pilot groups, considering the traditional farmer-to-farmer exchange of information. Participatory Rural Appraisal (PRA) and Rapid Rural Appraisal (RRA) could be of enormous help to the researchers to get in-depth understanding of the identification of research problems and finding suitable solutions.

OTHER RECOMMENDATIONS

INSTITUTIONAL

There was no evidence of a strong linkage between farmers and institutions. Thus, it seems apparent that extension support is needed.

The VASAT Project should be continued and enlarged as an example of how scientists test the relevance of their research with farmers. The value addition could be done to come up with a farmer friendly ICT4ARD platform to attend to their needs. The organization of the villages with private participation can improve production and explore new markets. Financial logistics, trained professionals, innovative learning methods and materials will be required to interact with farmers.

PROJECT ADVOCACY

The project and its results should be known by ICRISAT and other research institutions looking for a closer relationship with small and marginal farmers. Advocacy is strongly recommended for the multimedia approach: TV, radio, printed material, policy dialogues and newsletters. Institutional policies regarding the use of mass media and communication devices would be useful to standardize strategies and activities.

FOR FINAL ASSESSMENT AND OTHER PROJECTS

A final evaluation considering qualitative and quantitative methods should deeply assess activities, participation and reactions, evaluating knowledge, behaviors and impact using the seven levels proposed by Bennett [1982] and Bennett and Rockwell [2000].

The ICT4D framework can be applied in an effective way, using several mechanisms and tools with small farmers, especially considering countries where extension services count on few resources. Using ICT4D new interrelations among farmers, researches, institutions, local facilitators are generated and can possibly be viewed as a model to be adapted by research and extension institutions.

BIBLIOGRAPHY

Albicette M.M., Brasesco R., de Hegedüs P. 1999: *Evaluación de impacto de un proyecto de difusión y transferencia de tecnología,* Young, Instituto Plan Agropecuario, Uruguay, p. 83.

Balaji V., Meera S., Sreenath D. 2007: *ICT-enable knowledge sharing in support of extension: addressing the agrarian of the development world threatened by climate change, with a case study from India*, SAT eJournal, ejournal.icrisat.org 4(1), p. 18.

Bennett C. 1982: *Reflective appraisal of programs (RAP): An approach to studying clientele-perceived results of cooperative extension programs*, New York, Media Services, Cornell University, p. 19.

Bennett C.F., Rockwell C. 2000: *Targeting outcomes of program (TOP)*, Online, Available: http://www.citnews.unl.edu/TOP/english/, [20 Dec 2012].

de Hegedüs P., Vassallo M., Gravina V., Rodríguez, N. 2000: *Evaluación de las actividades realizadas por el Instituto Plan Agropecuario (1996-2000),* Montevideo, Instituto Plan Agropecuario, Uruguay, p. 28.

de Hegedüs, P. 1995: *Evaluación: Aspectos conceptuales y relación con la investigación*, [in:] *Educación de adultos y desarrollo 44*, Bonn, Institut für Internationale Zusammenarbeit, Germany, p. 69-88.

Dileepkumar G., Dixit S., Balaji V. 2005: *Agricultural extension with information and communication technology (ICT) mediated open distance learning (ODL) methods: A case study from rural South India,* Educomm Asia, 10(4), p. 8-11.

Dileepkumar G., Dixit S., Balaji V. 2006: *Rural Knowledge Centers as Facilitators of New Learning Opportunities for the Rural Families: a case study*, Online, Available: http://www.iasri.res.in/icsi2006/theme3/balaji.pdf, [20 Dec 2012].

Guerra A., Zocco J. 2006: *Informe de adopción e impacto. Proyecto producción artesanal de semilla de variedades mejoradas de maíz,* San Javier, FAO-DANAC, p. 22.

Heeks R. 2008: *ICT4D 2.0: The Next Phase of Applying ICT for International Development,* University of Manchester, IEEE Computer, 41(6), p. 26-33.

Kaur P., Patwar S., Gerard Sylvester A., Balaji V. 2009: *Use of semantic Wiki tool to build a repository of reusable information objects in agricultural education and extension: results from a preliminary study,* Online, Available: http://vasat.icrisat.org/images/New%20Folder/Web%202%20for%20Dev.pdf, [20 Dec 2012].

Lavanya N., Ramnaresh Kumar V., Sreedhar G., Gerard Sylvester A., Balaji V. 2010: *Fostering community preparedness to cope with drought: new initiatives and results from a study involving ODL and ICT from South Central India,* Online, Available: http://wikieducator.org/images/9/99/SJ_Lavanya.pdf, [20 Dec 2012].

Pautas para la preparación de evaluaciones independientes de programas y proyectos de la OIT. 1997: OIT, Oficina de programación y gestión, Online, Available: http://preval.org/documentos/00452.pdf, [20 Dec 2012].

Patwar S., Kaur P., Gerard Sylvester A., Balaji V. 2009: *Towards a novel content organization in agriculture using semantic technologies: a study with topic maps as a tool,* Online, Available: http://vasat.icrisat.org/images/New%20Folder/IJSMO.pdf, [20 Dec 2012].

Rudgard S., Ballantyne P., Del Castello R., Edge P., Hani M., Maru A., Morras E., Nichterlein K., Porcari E., Treinen S., Balaji V., Balasubramanian K. 2011: *ICTs as Enablers of Agricultural Innovation Systems,* In: *World Bank. ICT in agriculture: Connecting Smallholders to Knowledge, Networks, and Institutions,* Report number 64605, E-sourcebook. p. 113-147.

Sreedhar G., Nagarajan R., Ramnaresh Kumar V., Lavanya N., Gerard Sylvester A., Balaji V. 2010: *Disaster Preparedness using IT Tools: Case studies on the use of ICT and GIS derived tools for micro-level drought preparedness*, [Online], Available: http://vasat.icrisat.org/images/New%20Folder/Disaster%20Preparedness%20using%20IT%20tools%20FINAL.pdf, [20 Dec 2012].

Sreedhar G., Ramnaresh Kumar V., Nagarajan R., Balaji V. 2009: *Improving Micro-level Drought Preparedness Using GIS. Case study of Adakkal Mandal, AP,* The first monthly magazine on ICT4D, climate change, special information for development (I4D), vol. VII, no. 3, p. 27-30.

Taylor S.J., Bogdan R. 1986: *Introducción a los métodos cualitativos de investigación. La búsqueda de significados,* Buenos Aires, Paidos, p. 342.

Taylor Powell E., Steele S. 1996: *Collecting data evaluation: Direct observation. Program development and evaluation*, University of Wisconsin, USA, Online, Available: http://learningstore.uwex.edu/assets/pdfs/G3658-4.pdf, [20 Dec 2012].

Villarraga J. 1998: *Sistema de evaluación de impacto del proyecto de apoyo al desarrollo de la microempresa rural,* Colombia, PADEMER, FIDA, no. 426, p. 16.

María Marta Albicette, Rosana P. Mula, Ram Naresh, Kiran Yadav

WSTĘPNA OCENA MECHANIZMÓW KOMUNIKACJI UŻYTYCH W PROJEKCIE WIRTUALNA AKADEMIA TROPIKALNYCH OBSZARÓW PÓŁPUSTYNNYCH (VASAT)

Streszczenie

Małe i marginalizowane gospodarstwa rolne w wielu rozwijających się krajach na półpustynnych obszarach strefy tropikalnej są zależne przede wszystkim od usług z zakresu rozpowszechnienia wiedzy rolniczej. Technologie informacyjne i komunikacyjne na rzecz rozwoju (ICT4D) wiążą się z zainteresowaniem rozwojem określonych mechanizmów i narzędzi wraz z oceną wyników ich zastosowania. Analiza ośmioletniego projektu doradztwa w 21 wioskach Andhra Pradesh w Indiach sugeruje, że rozwój podejścia multimedialnego, badającego zarówno organizację lokalnych rolników, jak i kontekst, przynosi dobre wyniki. Takie wyniki są związane nie tylko z kwestiami technologicznymi, ale również kwestiami gospodarczymi, społecznymi i ekologicznymi. W artykule zaprezentowano badania jakościowe, w których analizowano opinie rolników i miejscowej ludności oraz zastosowano podejście teoretyczne na bazie refleksyjne oceny programów Reflective Appraisal of Programs (RAP). Wyniki badań można uznać za satysfakcjonujące, mogące stanowić podstawę do kontynuowania tego projektu lub kolejnych projektów ICT4D badających transfer innowacji i wiedzy.

Correspondence address:
María Marta Albicette
National Agricultural Research Institute (INIA)
Andes 1365 P.12, CP 11.100, Montevideo
Uruguay
email: malbicette@inia.org.uy

INVESTMENT DECISION SUPPORT SYSTEM FOR HIGH QUALITY CONTROL POSTS IN EUROPEAN UNION[1]

Willy Baltussen[*], *Wil Hennen*[*], *Monika Gębska*[**]

[*] LEI, The Hague, The Netherlands
Head of Department: Ir. LC Laan van Staalduinen
[**] Warsaw University of Life Sciences – SGGW, Warsaw, Poland
Head of Department: prof. dr hab. Henryk Runowski

Key words: control post, investment, BEP, mathematical model
Słowa kluczowe: punkt kontroli, punkt odpoczynku zwierząt, inwestycje, BEP, model matematyczny

A b s t r a c t: In 2010 an EU subsidy program started to create high quality control posts in Europe. Control posts are companies offering facilities for animals to rest and eat during long distance transport. They also offer facilities for trucks, drivers and competent authorities. A decision support program has been developed to support owners of control posts with their investment plan. The aim of this computer program is to calculate what increase in truckloads or in price per truckload is needed to justify the investment plans. The program was tested at two control posts participating in the EU project in Poland[2]. Both owners appreciated the added value of the program and suggested some improvements.

INTRODUCTION

The proportions of the regional production of animals in Europe are different from the respective regional consumption. As a result, animals and meat are transported all over this area. In the period 2005-2009 the number of cross-border truckloads of live animals within EU increased from 315,000 to almost 400,000 (excluding poultry). About two thirds of this transport is shorter than 8 hours, however, 16,000 to 24,000 truckloads so called "long distance transport" last more than 24 or 28 hours [Baltussen et al. 2011]. About 40% of these are cattle truckloads, about 40% are horses for slaughter truckloads, about 20% are pigs and about 5% are sheep and goats truckloads. Figure 1 shows the main long distance transports routes of cattle in 2009 in EU. The tendency was that during the period 2005-2009 the total number of consignments was increasing while the number of long distance transport has been decreasing since 2007.

The main routes of animals transported within EU have remained the same for a long time. The long distance transport has to stop at so called control posts, and has to unload the

[1] Paper was presented at the 19th Congress of the International Farm Management Association (IFMA), Warsaw (Poland), 21-26 July 2013.

[2] The authors want to thank the control posts owners for their cooperation.