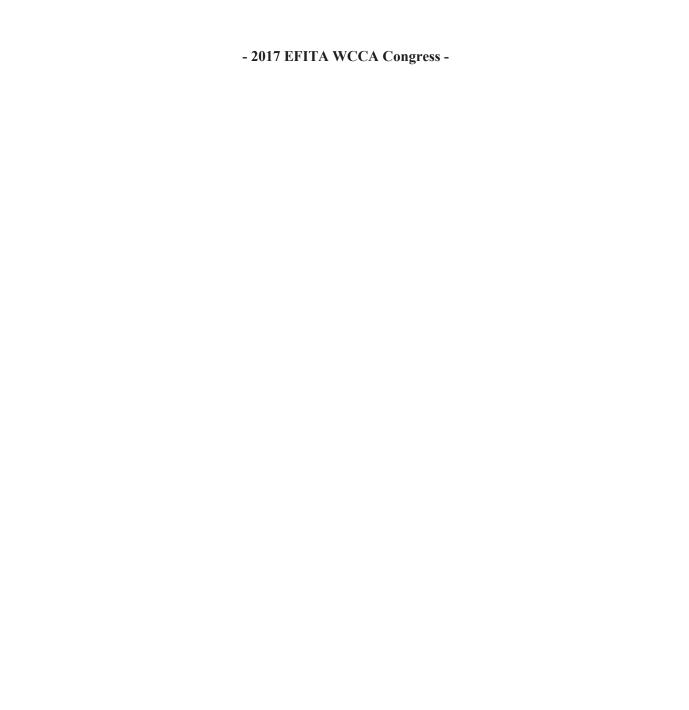# Conference proceedings

2017 EFITA WCCA CONGRESS

European conference dedicated to the future use of ICT
in the agri-food sector, bioresource and biomass sector

Montpellier, France – July 2nd - 6th

2017 EFITA WCCA Congress

Conference Proceedings

Montpellier, France

July, 2nd to 6th

Using the KoBoCollect tool to analyze the socio-economic and socio-cultural aspects of commercial hunting and consumption of migratory waterbirds in the Lakes Chad and Fitri (Chad)

Christophe Deniau[1], Tommy Gaillard[1], Audrey Mbagogo[2],
Maxime B. Réounodji[2], Sébastien Le Bel[1]

1. CIRAD, UR Forêt et Sociétés, Campus Baillarguet, Montpellier, France

2. FAO, National consultants, N'djamena, Chad

Keywords: waterbird, Sahelien, wetland, KoBoCollect, hunting, animal protein, perceptions

Abstract:

The Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA) aims at the conservation of migratory waterbird populations through the joint production of knowledge, collaborative and sustainable management. Within this framework the RESSOURCE project (Strengthen Southern Sahara Expertise on Birds and their Rational Use for Communities and their Environment) funded by FAO, EU and FFEM was developed. The aim of the project is to improve the knowledge on waterbirds and their using in order to promote a better management of the waterbird populations and habitats on the following sites: the Senegal River Delta (Senegal), Inner Niger Delta (Mali), Lakes Chad and Fitri (Chad), the Nile Delta and Nasser Lake (Egypt) and the Khor Abu Habil (Sudan). Component 3 of the project focus on the using of waterbirds for which there is little or no data available about ecotourism, sport-hunting, recreation, food or commercial hunting. Our aim is to address the local and national socio-economic impacts of these sectors.

Therefore, to strengthen the conservation of waterbirds and Sahelien wetlands, the project aims to build national observatories. Indeed, defined as information systems, they facilitate shared understanding of the issues, participate in decision-making, promote collective and coherent actions, organize the management of information flows and their links to actions. This information is derived from the data collected according to a series of indicators generated by this same collection process. Thus, facilitating such collection also facilitates the creation of these observatories. New technologies and social networks are now considered effective tools for conservation. They can contribute significantly to the collection and sharing of data in real time. Today, there are a number of free and open tools used for species conservation against illegal wildlife trade (Traffic 2017). Experiments have shown that SMS may be limited in terms of collection and transfer of complex information (Le Bel, Chavernac et al. 2014). It is therefore necessary to choose the most suitable technology for the production of direct data in real time.

To meet our objectives of observatory building, of managing complex data and information flows for sharing, for decision-making and collective action, we turned to OpenDataKit system with KoboToolBox and its KoBoCollect Android smartphone application developed by the Harvard Humanitarian Initiative and OCHA (Kreutzer 2014). The tool responds to the following 4 main actions: i/ Collecting field data on a smartphone, ii/ Centralizing the data on the Internet platform, iii/ Analyzing the data (automatic pre-analysis and downloading to spreadsheet) and iv/ Giving back data to the field. This tool does not require any qualification or advanced technical knowledge. It can be used in areas not covered by the internet because once collected the data is stored in the smartphone. When the investigator finds internet access he can send this data by synchronization to the platform. Previously used for inter-stakeholder study and decision-making projects on human-wildlife conflict mitigation (LeBel, Chavernac et al. 2016) we benefit from the experiences and advice of a growing 'community'. Likewise, since the project is long-term, it aims at the transfer and appropriation by national scientific, administrative and citizen actors of this digital tool, which can improve consultation and decision-making.

The use of KoBoCollect involves a 3 step process. Following a first exploratory survey in November 2016, we were able to identify socio-cultural, economic, legal indicators and logistical constraints (in particular the fear of speaking and contradictory speeches) and design a first questionnaire. During the second phase of co-construction in January 2017 with the national consultants, a questionnaire with 5 themes and two entry points on waterbird utilization, trade and consumption was tested in order to design the survey. The third step was to develop an electronic form under KoBoCollect, to test it for improvement and to train the team of

enumerators to a digital note taking.

The survey in Lakes Chad and Fitri took place in 20 villages (360 interviews) from 5th March to 9th April 2017. Information collected aims at testing hypotheses on the following behaviors: food choice, food access, income, leisure and pleasure. We collect quantitative and qualitative data through a set of questions focusing on the multi-uses of waterbirds in these territories. Additional questions were added on stakeholders' perceptions and knowledge of wetlands, waterbirds, migration, legislation and hunting. The first Chadian data is currently stored on the KoBoToolbox site and nearly ready for analyzing.

The innovation within this socio-economic, socio-cultural and cognitive survey protocol is the use of the KoBoCollect as a co-production tool. Thus, the use of this numerical digital interface tool has several advantages: speed of access to collected data and its sharing, standardization of qualitative data for statistical analysis and pre-analysis carried out on the storage platform of KoBoToolbox, compilation and creation of database, remote access and data sharing and finally solution sharing by the "KoBoToolbox community". In this way, it could constitute the first step to the observatory building. Because of these facilities and by attempting to minimize bias of protocol change, we can improve the collection with the investigators in a more reactive way during the process. This saves time and meets scientific and financial objectives. Also, the consultants' appropriation took place quickly and did not encounter any specific problems, even if they mentioned navigational difficulties within the digital questionnaire, as we might do in an interview with a paper questionnaire and handwritten notes. Similarly, the challenge of collecting qualitative, literal and complex data with a digital interface remains to be considered. Thus, field tests have enabled us to identify important points to optimize and improve the tool whenever possible. For the moment these points concern computer bugs and correspondence of the environment between the website and the smartphones.
Since the African continent has a high level of mobile penetration and the highest mobile growth rate (Aker and Mbiti 2010), this type of mobile data collection system could be an efficient tool for strengthening the monitoring and management of natural resources in terms of speed and accession. However, in order that these gains not to be unnecessary, the choice of such a tool must take into account: knowledge of the terrain and its constraints (energy, internet coverage and GSM), co-construction of the questionnaire, standardization of the data collection, numerous field tests, a simplified questionnaire for simplified navigation within the application, the relationship between time passed on direct digitization of data and time passed in preparation and digital collection.

References

Aker, J. and J. Mbiti (2010). "Mobile phones and economic development in Africa." Journal of Economic Perspectives 24(3): 207–232.

Kreutzer, T. (2014). "KoBoToolbox used by OCHA in Central African Republic." Retrieved 15/02/2015, from http://www.kobotoolbox.org/blog/kobotoolbox-used-ocha-central-african-republic.

Le Bel, S., D. Chavernac, G. Mapuvire and G. Cornu (2014). "FrontlinesSMS as an early warning network for human-wildlife mitigation: Lessons learned from tests conducted in Mozambique and Zimbabwe." Electronic Journal of Information Systems in Developing Countries 60(6): n.p.

LeBel, S., D. Chavernac and F. Stansfield (2016). Promoting a mobile data collection system to improve HWC incident recording: a simple and handy solution for controlling problem animals in southern Africa. Problematic Wildlife A Cross-Disciplinary Approach. (ed.) Francesco A.M., Springer: 395-411.

Traffic. (2017). "The Wildlife Trade Monitoring Network." World Population Prospects: The 2010 Revision, Volume I: Comprehensive Tables. ST/ESA/SER.A/313 Retrieved 12 march 2017, from http://www.traffic.org/home/2015/10/15/chinese-tcm-industry-says-no-to-illegal-wildlife-trade.html.