

Participation in European COST – TERRA Action IC0905: Experiences

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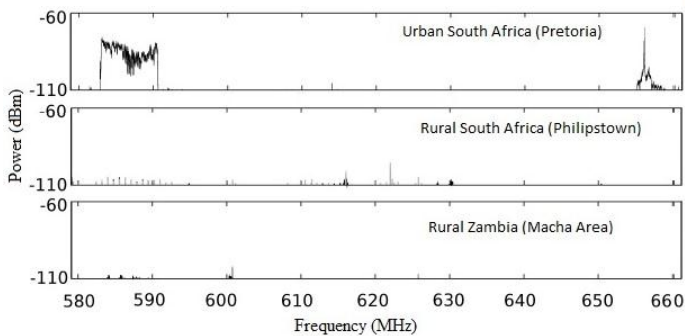
CSIR Meraka Institute - Pretoria



European Cooperation in Science and Technology Seminars

24 to 26 March 2014 – Pretoria, Univ. of Limpopo and Cape Town - South Africa

Wireless Computing and Networking (WCN) Group



- Since 2005, we focused in R&D for rural broadband connectivity solutions.
- Focused mainly on technologies that uses license-exempt spectrum for mesh networks.
 - 49 Node mesh test-bed
 - Over 200 facilities connected in Mpumalanga province
- Since 2009, we started research on cognitive radio as enabling technology for dynamic spectrum access and for rural connectivity.
 - Signed MoU with ICASA - 2011
 - We built an SDR platform for CR research - 2010
 - Conducted several TV spectrum measurements Southern Africa
 - Cape Town and Limpopo TVWS trials
 - Participated in ITU WRC-2012 SADC preparatory meetings

About COST and COST-TERRA Action

- Key features of European COST includes (www.cost.eu):
 - Building capacity by connecting high-quality scientific communities throughout Europe and worldwide;
 - Providing networking opportunities for early career investigators;
 - Increasing the impact of research on policy makers, regulatory bodies and national decision makers as well as the private sector.
- COST TERRA Action IC0905:
 - TERRA – Techno-Economic Regulatory Framework for Radio Spectrum Access for Cognitive Radio/Software Defined Radio
 - Focused on coordinating technical and economic studies for the development of a harmonized European regulatory framework
 - To facilitate the advancement and broad commercial deployment of CR and SDR systems.
 - In 2011, 20 member countries and one non-COST country (Canada)

Belgium, Croatia, Denmark, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Ireland, Italy, Lithuania, Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland, United Kingdom

Joining COST TERRA Action

- In 2011 I learned about COST-TERRA Action and joined with the aim of
 - Establishing partnerships and collaborations with EU research community in areas of CR and spectrum policies & regulations.
 - Our research problems were similar to those addressed by COST-TERRA Action.
- I contacted the COST TERRA chair indicating my intention to participate.
 - He advised me to write a motivation letter, he also shared an example of a successful application by non-COST country.

Joining COST TERRA Action

- We wrote the application letter, my manager to sign - submitted **10** Feb 2011
- COST office accepted the application, and then sent me a template to be completed by Non-COST countries – I received it **16** Feb 2011
- Completed the template and sent back to COST office – **23** Feb 2011
- Received acknowledgement from COST TERRA chair, who indicated that the application was submitted for electronic voting by Management Committee of COST TERRA Action – **09 March** 2011.
 - I was invited to COST-TERRA meeting for June 2011 while waiting final decision



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**REQUEST FOR PARTICIPATION OF INSTITUTIONS FROM NON-COST COUNTRIES
COST ACTION IC0905 TERRA**

*We, **NAME**, COST Office Science Officer and **NAME**, Action Chair, acknowledge good receipt of the motivation letter from the applying Institution and provide it as an accompanying supporting document to this official request.*

Seed Funding from DST

- Contacted DST for seed funding to attend the first COST-TERRA meeting in 2011
- My first application was submitted to DST on 4th May 2011.
 - On the 5th May 2011 I received a letter from DST confirming successful funding was successful, and funds were transferred into my account.
- Important regarding DST Seed funding:
 - Submit a report within 30 days after your trip
 - From 2012, "A once off payment of R100 000.00 will be transferred on an annual basis upon receipt of the first application for the year, and funds are to be used for the COST Action activities of the year of application."
 - DST will enter into contracts with the applicant's institution for all funding instruments established to support SA's participation in the European Union funded programmes.
 - It may take up to a month to get a response from DST
 - So, apply at least 2 months before your planned activity

My Participation in COST TERRA Action



TECHNO-ECONOMIC REGULATORY FRAMEWORK FOR RADIO
SPECTRUM ACCESS FOR COGNITIVE RADIO(SOFTWARE
DEFINED RADIO)

Vilnius
27 April 2012

Best Presentation Award Certificate

We hereby acknowledge the high quality and topical value of the presentation:

*Ongoing Research on Cognitive Radio at CSIR Meraka:
Progress Report*

by

Moshe Timothy Masonta, CSIR Meraka Institute, South Africa

which was made at the 5th meeting of COST Action IC0905 TERRA, 25-27 April 2012, Vilnius, Lithuania and awarded IIIrd place in the Best Presentation competition.

- Our group attended the following COST-TERRA meetings:
 - 3rd COST-TERRA meeting, June 2011, Brussels, Title of talk: "Cognitive Radio research at CSIR Meraka", by **Moshe Masonta**
 - 4th COST-TERRA meeting, November 2011, Brussels, Title of talk: "TVWS potential and activities in South Africa", By Dr Ntsibane Ntlatlapa
 - 5th COST-TERRA meeting, April 2012, Vilnius, Title of Talk: "Ongoing research on cognitive radio at CSIR Meraka: progress report", by **Moshe Masonta**
 - 6th COST-TERRA meeting, Title of Talk: "TVWS Spectrum Databases for CR based Shared Spectrum Wireless Broadband Networks in Emerging Economies: Challenges & Opportunities.", by Dr Fisseha Mekuria

My Participation in COST TERRA Action

- **Training organised by COST-TERRA Action:**
- **International PhD course: "Theory and practice of Cognitive Radio"**
 - 09 – 11 May 2012
 - Aalborg University
 - Denmark
- **Summer school: "Cognitive radio/Dynamic spectrum access"**
 - 23 – 25 July 2012
 - Trinity College Dublin,
 - Republic of Ireland
- **Workshops organised by COST-TERRA Action**
 1. IEEE Int. Workshop on Computer-Aided Modeling Analysis and Design of Communication Links and Networks,
 - **M.T. Masonta**, Y. Haddad, L. De Nardis, A. Kliks & O. Holland, "Energy Efficiency in Future Wireless Networks: Cognitive Radio Standardization Requirements", Barcelona, Spain, 17-19 September 2012.
 2. Spectrum sharing strategies for wireless broadband service Workshop
 - **M.T. Masonta**, A. Kliks and M. Mzyece, "Framework for TV White Space Spectrum Access in Southern African Development Community (SADC)", *Proc. of 24th IEEE Int. Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC)*, London, UK, 08-11 September 2013.

COST TERRA Action - Values

- Undertook a Short Term Scientific Mission to Poznan University of Technology, Poland (over 10 day in Feb 2013)
- **Co-authorship with European researchers**
 - A. Kliks, A. Medeisis, Y. Haddad, **M. T. Masonta**, L. de Nardis and O. Holland, "Intelligent Future Wireless Networks for Energy Efficiency: Overall Analysis and Standardization Activities," in *Green Networking and Communications*, S. Khan and J.L. Mauri (Eds.), CRC Press, pp. 82-113, 2013
 - R. Chavez-Santiago, M. Szydelko, A. Kliks, F. Foukalas, Y. Haddad, K. E. Nolan, M. Y. Kelly, M. T. Masonta, I. Balasingham, "5G: The Convergence of Wireless Communications", *submitted to Computer Networks Journal, 2014*
- Exposure to experts involved in standardization (ETSI), CEPT, and ITU.
- Gained valuable knowledge and skills for my career growth and Doctorate studies.
- Valuable lessons on RF spectrum management which will benefit our national regulator and country in general

Closing Remarks

- **I encourage South African researchers to participate in COST**
 - Especially young researchers
 - Most actions last for few years,
- **Important to have your institutional support**
 - DST seed funding does not cover HR time
- **Participating in COST presents number of opportunities:**
 - Networking,
 - Collaborations
 - Which may lead to major funding for bigger projects (e.g. Horizon 2020)

Acknowledgments

- **I appreciate the support from my group and institution**
 - Institutional support is vital
- **I appreciate Financial support from the Department of Science and Technology (DST), and the ESASTAP Office .**

Thank you for your Attention

Moshe Masonta

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