

THE USE OF ICT FOR SOCIAL INCLUSION AND PARTECIPATIVE PLANNING. A CASE STUDY OF
"SOUTH-NORTH" TECHNOLOGY TRANSFER

Original

THE USE OF ICT FOR SOCIAL INCLUSION AND PARTECIPATIVE PLANNING. A CASE STUDY OF "SOUTH-NORTH" TECHNOLOGY TRANSFER / DE FILIPPI, Francesca; Pantanetti, S.. - In: JUNCO. - ISSN 2531-8772. - ELETTRONICO. - 1:(2014), pp. 846-857. (Intervento presentato al convegno CUCS Torino 2013 tenutosi a Torino nel 19-21 September 2013).

Availability:

This version is available at: 11583/2591365 since: 2020-11-07T12:33:34Z

Publisher:

Università di Torino

Published

DOI:

Terms of use:

This article is made available under terms and conditions as specified in the corresponding bibliographic description in the repository

Publisher copyright

(Article begins on next page)

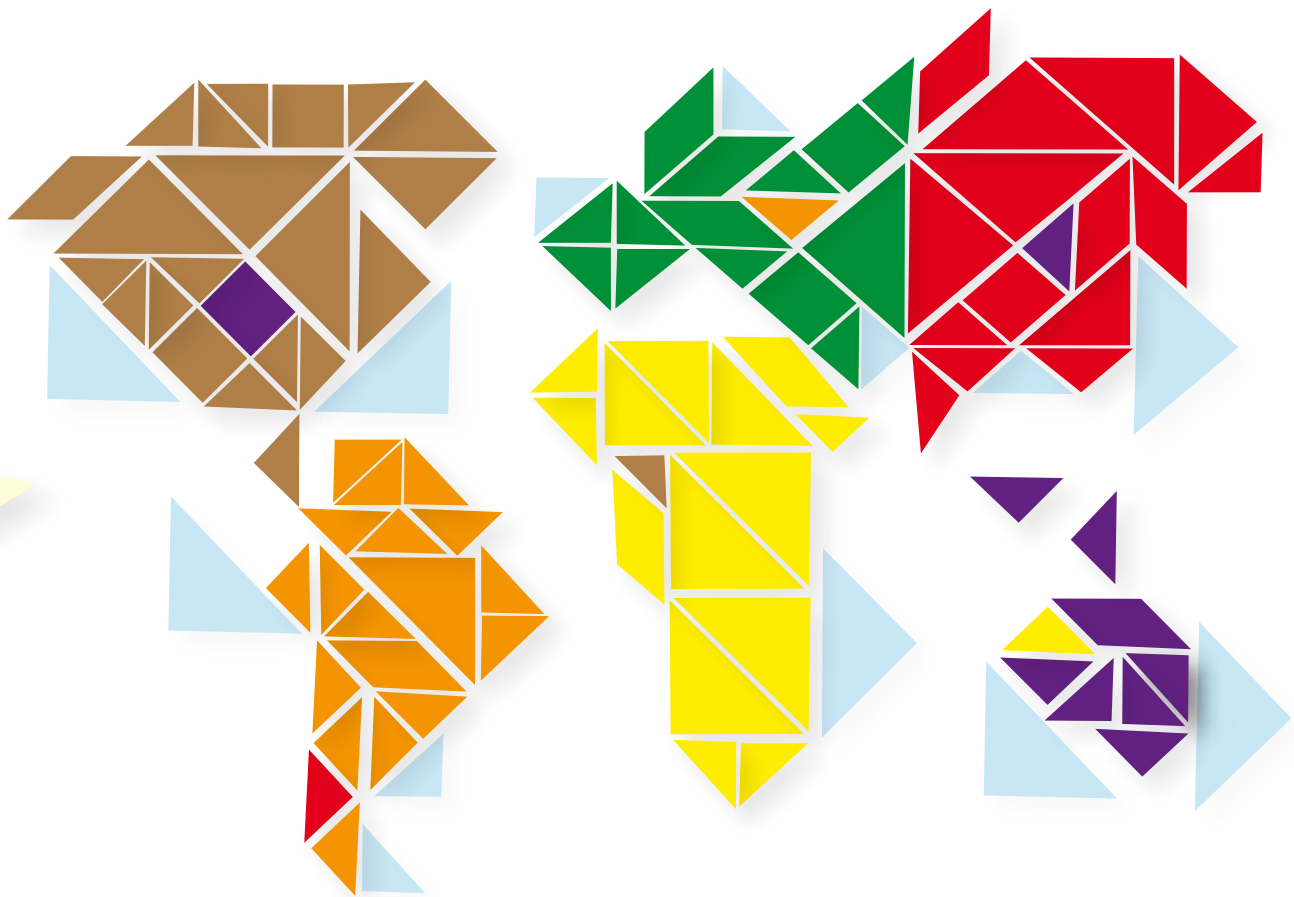
CUCS
TORINO
2013



**IMAGINING CULTURES OF COOPERATION:
UNIVERSITIES NETWORKING TO FACE THE NEW DEVELOPMENT CHALLENGES**

Proceedings of the III Congress of the University Network for Development Cooperation (CUCS)

Turin, 19-21 September 2013



**POLITECNICO
DI TORINO**



**UNIVERSITÀ
DEGLI STUDI
DI TORINO**

Egidio Dansero, Francesca De Filippi, Emanuele Fantini, Irene Marocco (eds.)

**Imagining Cultures of Cooperation:
Universities networking to face the new development
challenges.**

Proceedings of the III Congress of the University Network for
Development Cooperation (CUCS)

Turin 19-21 September 2013.

JUNCO – Journal of UNiversities and international development COoperation,
n.1/2014

COLOPHON

Editors

Egidio Dansero, Francesca De Filippi, Emanuele Fantini, Irene Marocco

Graphic Design

Politecnico di Torino – CORE Office (Salvatore Lombardi, Giorgia Nutini, Elisa Tinozzi) with the support of Anita Stankova and Davide Cirillo.

Images

All images are provided by the authors unless mentioned otherwise.

Publisher

The Proceedings of the III CUCS Congress are published as a first special issue of

JUNCO - Journal of Universities and international development COoperation.

JUNCO is published by the University of Turin and Politecnico di Torino in the Open Access Journals' platform of the University of Turin: <http://www.ojs.unito.it/index.php/junco/index>

The Proceedings of the III CUCS Congress have been published with the support of the Department of Cultures, Politics and Society of the University of Turin.



ISBN 978-88-96894-16-3

These Proceedings are licensed under Creative Commons Attribution-NonCommercial 4.0 International Public Licence

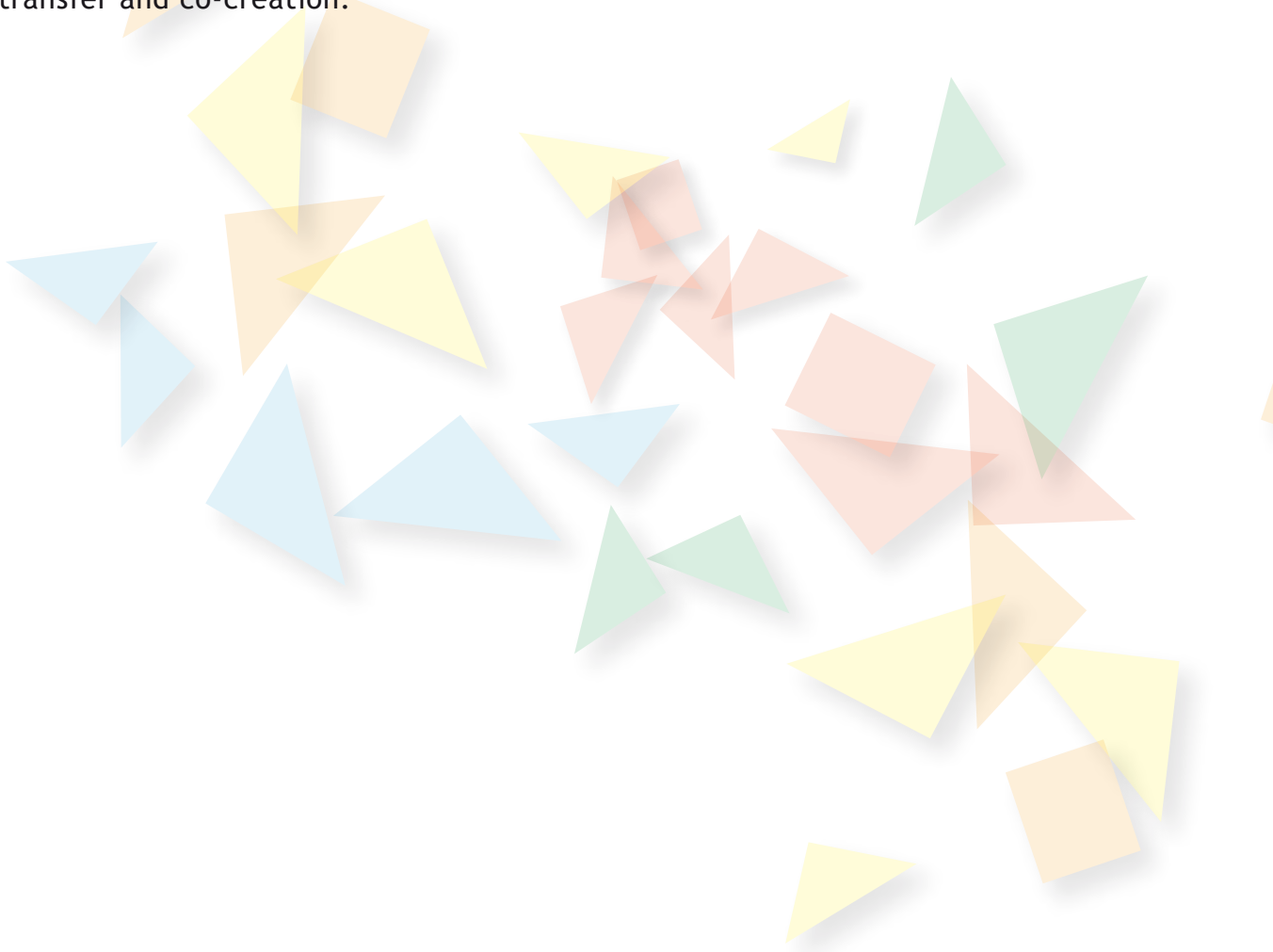


TABLE OF CONTENTS – SESSIONS

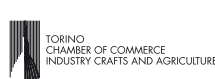
| | |
|---|-----|
| <i>Opening remarks</i> | iii |
| <i>Education, training and human resources</i> | 1 |
| <i>Global Health</i> | 94 |
| <i>Security, risks, conflicts and vulnerability</i> | 143 |
| <i>Human settlements, territories and communities</i> | 173 |
| <i>Economic development: actors, networks and processes</i> | 327 |
| <i>Development cooperation methods and approaches</i> | 450 |
| <i>Rural development, natural resources and environment</i> | 575 |
| <i>Cultural cooperation</i> | 729 |
| <i>ICT and media for development</i> | 804 |
| Table of contents - Papers and posters | 868 |

The Italian Universities Network for Development Cooperation (CUCS) has been founded in 2007 and nowadays includes 28 Italian Universities. The III CUCS Congress (CUCSTorino2013) was held in Turin on the 19th, 20th, and 21st of September, 2013. CUCSTorino2013 was co-organised by Politecnico di Torino and University of Turin in the frame of the growing partnership between these two Universities with other relevant development cooperation actors (the UN system, the Italian Ministry of Foreign Affairs, local authorities, foundations and NGOs and their respective partners in the so called “Global South”).

The Congress, titled “Imagining cultures of cooperation: universities networking to face the new development challenges”, focused on changes occurring at different levels on current development and cooperation trends (theories, policies, practices, and the definition of the Global Development Agenda post 2015), on the role of universities as development cooperation actors and their contribution in terms of research, education & training, solutions implementation in the field, technology transfer and co-creation.



Partners _____ Under the patronage of _____ With the support of _____ In collaboration with _____



ISBN 978-88-96894-16-3



9 788896 894163 >

Table of contents - Papers and posters

SESSION: OPENING REMARKS

- iii Foreword
Rectors: Gianmaria Ajani, Marco Gilli
- iv Imagining cultures of cooperation: Universities networking to face the new development challenges
Egidio Dansero, Francesca De Filippi, Emanuele Fantini, Irene Marocco
- ix Italy and the post 2015 development agenda. The role of universities
Caterina Bertolini
- x University networks as actors of scientific and multidisciplinary partnerships: history and development of CUCS
Emanuela Colombo
- xii The development scenarios and university cooperation
Gianni Vaggi
- xvii Role and social responsibility of the university in promoting international cooperation for global health
Edoardo Missoni

SESSION: EDUCATION, TRAINING AND HUMAN RESOURCES

Partnerships between academia and NGOs in technical studies in Italy

- 1 Partnerships between academia and NGOs in technical studies in Italy
Guido Zolezzi, Angela Ortigara, Marco Bezzi, Emanuela Colombo, Lorenzo Mattarolo, Carlo Collivignarelli, Sabrina Sorlini, Mentore Vaccari, Francesco Vitali, Francesco Mongera, Italo Rizzi, Giovanni Armando, Giorgio Cancelliere, Fabio Fussi

Cooperation programs on education and teachers training: the role of university and effectiveness evaluation

- 8 Cooperation programs on education and teachers training: the role of university and effectiveness evaluation
Cristina Coggi, Paola Ricchiardi
- 10 From a disciplinary approach to the culture of inclusion: the role of the Department of Education Studies of the University of Bologna in the project “Inclusive education for children with disabilities in Kosovo”
Federica Zanetti
- 16 Implementing and evaluating teachers training and education interventions in the global south
Cristina Coggi, Paola Ricchiardi
- 24 The project “Fenix” in TeofiloOtoni – Brazil – Minas Gerais. Training teachers on cognitive enhancement for children living in dilapidated containers
Tiziana Bonasso
- 26 Cognitive enhancement for children in developing countries. A teacher training experience in a Kigali primary school.
Roberto Trincherro

ICT and Capacity Building

- 33 ICT and Capacity Building: the contribution of interuniversity cooperation to the training of global and local entrepreneurship in cultural, economic and social sectors
Angelo Inzoli
- 35 Possible areas and critical elements for building development cooperation initiatives in education and blended learning methodologies
Gerolamo Spreafico
- 40 The intercultural perspective of e-learning programs and the use of new technologies in Africa
Angelo Inzoli, Lucie Zouya Mimbang
- 47 Participatory processes and tools for improving teachers professionalism: the IUS Case
Piergiuseppe Ellerani, José Gil Mendoza Ma.
- 55 Alternative media strengthening and support mechanisms in African protracted crises and conflict-affected territories: can paradigm shifts assist and relief?
Mohamed S.M. Yassin, Renato Sesana (Kizito)

HEI Cooperation for capacity building in biodiversity conservation, food security and sustainable development

- 62 HEI cooperation for capacity building in biodiversity conservation, food security and sustainable development
Cristina Giacomina
- 63 Cooperation experiences with HEIs in the Indian Ocean
Cristina Giacomina
- 67 Fostering “Little Green Guards” through a collaborative partnership to create an effective conservation education program for rural children in Guizhou, China
Chia L. Tan, Yeqin Yang, Kefeng Niu, Lei Shi, Weiyong Zhang, Isidoro Riondato, Cristina Giacomina, Emilio Balletto, Marco Gamba, John A. Phillips
- 73 A Program in higher education for food security and environmental sustainability
Carlo Semita, Elena Ferrero, Gabriella Trucchi, Angela Calvo

Posters

- 81 Teaching Italian and Arabic: an interchange between Italy and Libya
Barbara Airò, Silvio Beretta, Antonio M. Morone
- 82 «Insieme per Makamba»
Anael Bianucci, Chiara Ghislieri
- 83 M.M.SC. Track In integrated environment and landscape design in the context of international cooperation. Field work internship as opportunity for engineering students to approach developing context
Marco Bezzi, Guido Zolezzi, Martina Ferrai, Davide Geneletti, Cordeiro A. R. Ortigara.
- 84 Preparare i bambini all'adozione internazionale. Ideazione di nuove prassi con gli operatori burkinabè
Marta Casonato, Paola Molina, Gisèle Thiombiano
- 85 Capacity building in ICT: the Experience of Maputo living lab's Summer Schools
Aaron Ciaghi, Pietro Molini, Adolfo Villafiorita
- 86 1st level Master in “Oral Health in Disadvantaged Communities and Low Income Countries”
Giancarlo Vecchiati, Francesco Bassi, Patrizia Di Caccamo, Jennifer Atkinson, Luca Cavallo, Giulio Preti
- 87 Promuovere la salute orale in cooperazione internazionale: una sfida di salute globale nelle esperienze di progetti integrati in Libano e in Etiopia
A. Rinaldi., P. Di Caccamo, G. Benedetti, B. Giordani, C. Resti
- 88 Establishing a new Master degree in sustainable crop protection in Egypt: a project funded by EU TEMPUS programme
Paola Colla, Davide Spadaro, Maria Lodovica Gullino
- 89 Tutori di resilienza. Modello di formazione di insegnanti e social workers nell'ambito del programma MOSAIC del Ministero degli Affari Sociali Libanese con il supporto della cooperazione italiana
V. Hurtubia, F. Giordano, C. Castelli
- 90 University-NGOs partnership in formal education: the experience of CIVIC.A.S.
Francesco Mongera, Michela Bortoli, Guido Zolezzi, Marco Bezzi
- 91 A wood in the San Salvario neighborhood: A Photovoice project
Valentina Noya
- 92 Indo-Italian International School on "Use of e-infrastructures for advanced seismic hazard assessment in Indian Subcontinent"
Antonella Peresan, Giuliano F. Panza, Giampiero Viezzoli
- 93 L'osservazione: uno strumento di lavoro per gli educatori della prima infanzia.
Maria Nives Sala, Paola Molina
- 861 Master in Architecture for Health
Addendum Francesca Giofrè, Giuseppe Primiceri, Ivana Miletic

SESSION: GLOBAL HEALTH

Training abroad for residents

- 94 Training abroad for residents
Luisa Mondo, Giuseppe Costa

Global Health Governance, healthy systems and development cooperation

- 97 Global Health Governance, healthy systems and development cooperation
Eduardo Missoni, Angelo Stefanini, Paola Brusa
- 100 The role of the university in the global health strategies of the Italian development cooperation
Angelo Stefanini, Eduardo Missoni

- 107 Global health education and the growing need for policy-making and management training of future health-relevant professionals
Eduardo Missoni, Fabrizio Tediosi
- 117 The challenge of training health personnel in resource-limited settings
F. Castelli, S. Caligaris, A. Matterelli, M. Bettinzoli, G. Sulis, V. Pietra
- 123 A.P.P.A.® PROJECT: an example of international health cooperation
Francesca Baratta, Antonio Germano, Gaetano Di Lascio, Paola Brusa
- 130 GHC-TUSCANY: new partnerships for the global health
Maria José Caldés, Nicole Mascia, Michele De Luca

Posters

- 135 ARACNE Tessere reti per il diritto alla salute dei migranti
Comitato Collaborazione Medica
- 136 Promozione della salute in una società multietnica
Iolanda Vigna, Christel Makoutsin, Mirela Rau, Bi Xu, Mariamel Gendi, Maria Cristina Odiard, Claudia Spezia, Maria Luisa Soranzo
- 137 Impact of pregnancy and labour complications on neonatal outcomes: a retrospective cohort study in a rural hospital of Ethiopia
Elisa Bobba
- 138 Positive and negative effects of financial and non-financial incentive mechanisms for health workers in rural and remote areas of Ethiopia. Focus on Oromiya, Somali and Tigray regions
Maria Alessandra Brocardo
- 139 Professionalization of future humanitarian health workers: an innovative hybrid training course for residents in anesthesia and critical care medicine in collaboration with an Italian NGO.
P.L. Ingrassia, M. Foletti, L. Ragazzoni, A. Ripoll, F. Della Corte.
- 140 Humanitarian Medic: an innovative training program for the professionalization of humanitarian health workers in anesthesia and critical care medicine during residency programs.
P.L. Ingrassia, M. Foletti, L. Ragazzoni, A. Ripoll, F. Della Corte
- 141 Selezione e uso di idonei alimenti locali per la prevenzione della malnutrizione infantile
Bruna Santini, Emanuela Nigro, Maria Luisa Soranzo
- 142 Bibliographic repository. Comitato di Collaborazione Medica (CCM)
G.P. Zara, S. Rasetti, F. Locatelli, L. Palmucci, C. Rigazzi, M. Passatore, A. Levis, M. Bertini, M. Fascendini, E. Bobba
- 862 A.P.P.A.® Project: study of pediatric formulations for using in developing Countries
Addendum Francesca Baratta, Francesca Tarditi, Paola Brusa

SESSION: SECURITY, RISKS, CONFLICTS AND VULNERABILITY

Geomatics for emergency management

- 143 Foreword to the oral session “Geomatics for emergency management”
Piero Boccoardo
- 146 Evaluation of TRMM Satellite data for mapping monthly precipitation in Pakistan by comparison with locally available data
Muhammad Adnan Shahid, Piero Boccoardo, Walther Cámara García, Adriana Albanese, Elena Cristofori
- 155 Flood-risk mitigation in the Soliette River Basin: an international cooperation initiative (Haiti, Dominican Rep., Italy)
A Domeneghetti, L. Brandimarte, M. Barbarella, A. Castellarin, L. Brandimarte, G. Di Baldassarre, A. Brath
- 164 Unmanned Aerial Systems for data acquisitions in disaster management applications
Irene Aicardi, Filiberto Chiabrando, Andrea Lingua, Francesca Noardo, Marco Piras

Posters

- 172 Realisation of a Geomatics Laboratory for the Management of Hydrogeologic and Seismic Risks
Giorgio Poretti, Chiara Calligaris, Michele Ferneti
- 863 Solid waste management in armed conflicts and unstable conditions: a case study from the Gaza strip
Addendum Marco Caniato, Mentore Veccari

SESSION: HUMAN SETTLEMENTS, TERRITORIES AND COMMUNITIES

Sustainability of appropriate environmental technologies in developing countries

- 173 Sustainability of appropriate environmental technologies in developing countries
CeTAmb

- 175 Sustainability of appropriate environmental technologies in developing countries: general framework
Carlo Collivignarelli, Sabrina Sorlini, Francesco Vitali
- 179 Sustainability of water supply projects: considerations from two case studies
Sabrina Sorlini, Luca Rondi
- 188 Healthcare sustainable design in the global south. A tale of two stories.
Marco Morandotti, Daniela Besana
- 196 International university cooperation for valorizing crude earth as building material in Chad and Cameroon
Jean Pierre Temga, Angelo Mazzù, Jean Pierre Nguetnkam, Daniela Palazzini, Robert Ndjouenkeu, Francesco Vitali
- 204 Enhancing energy access for the poor: the role of appropriate technologies in the use of traditional solid fuels
Francesco Vitali, Mentore Vaccari
- 210 Study of design of a low environment and social impact landfilling in Togo, Assahoun Village
Alessandra Bonoli, Sara Bellavita

Emergency vs Development. The architectural project within development cooperation

- 216 Emergency vs Development. The architectural project within development cooperation
Francesca De Filippi, Alessio Battistella
- 218 Architecture quality of cooperation projects
Camillo Magni
- 220 A methodological proposal for the assessment of the sustainability of post-disaster reconstruction processes
Elisa Salvaneschi, Marco Morandotti
- 228 Developing emergency
Riccardo Vannucci
- 237 Vernacular approach to architectural design in a development cooperation experience with Mexican indigenous communities
Roberto Pennacchio, Roberta Nicchia, Alessandra Basile, Andrea Tulisi.

Community development and psycho-social intervention

- 245 Community development and psycho-social intervention
Alfredo Mela, Norma De Piccoli
- 246 International cooperation in the field of higher education: the TEMPUS Programme
Norma De Piccoli, Silvia Gattino, Cristina Mosso
- 249 African cinema as instrument and opportunity in inter-academic cooperation: a project in Ngozi (Burundi)
Emanuela Gamberoni
- 254 Appreciative inquiry in Saint Martin: exploring the potential for change
Manuel Marrese
- 261 Identidad, memoria y desarrollo de comunidad
Anna Maria Bastianini, Ester Chicco, Alfredo Mela
- 864 Cooperation, discours, changement: bias dans le discours academique sur le conflit
Addendum *Davide Ziveri, Angela Fedi*

Plans and projects “beyond the boundaries”: subjects, knowledge and tools

- 267 Plans and projects “beyond the boundaries”: subjects, knowledge and tools
Daniela De Leo
- 270 Una exploración de los currículos de las escuelas europeas de planeamiento en el ámbito de la planificación descentralizada
Valentina Alberti, Sara Bindo, Enrica Gialanella
- 276 Spatial planning in predominantly vernacular settlements. The case of African rural towns.
Roberta Nicchia
- 284 Developing the new strategic Masterplan for Herat (Afghanistan)
Mirella Loda, Mario Tartaglia
- 293 Knowledge and processes of sustainable development for the South-East Europe
Chiara Camaioni, Ilenia Pierantoni, Massimo Sargolini
- 301 Beyond tourism: discovery of the historical and artistic heritage of Havana
Micaela Scacchi
- 309 Sapienza Millennium. Projects and thoughts. University of Rome Sapienza and the international cooperation
Maria Grazia Montella

Posters

- 315 Participatory design and building with international students and indigenous communities of Mexico
Alessandra Basile, Roberta Nicchia, Roberto Pennacchio, Andrea Tulisi
- 316 Haiti | 1 | Foyer d'accueil aux enfants démunis d'Haiti
Architettura Senza Frontiere Piemonte ONLUS
- 317 Argentina: Cooperation between Fossano and Rafaela
Architettura Senza Frontiere Piemonte ONLUS
- 318 Haiti | 2 | Re-start from straw
Architettura Senza Frontiere Piemonte ONLUS
- 319 Multiple voices design for the south of Quito: cooperation between universities and municipalities
Roberta Bianchi, Luca Brivio, Maurizio Chemini, Alberto Merigo
- 320 Elimu na Malezi: psychosocial adjustment assessment in Tanzanian primary school children
Massimo Cotichella, Emanuela Rabaglietti, Beatrice Sacconi, Samwel Kilimuhana, Vivian Nankurlu
- 321 Float-ram: a new human powered press for earth blocks
Carlo Ferraresi, Walter Franco, Giuseppe Quaglia
- 322 Design for emergency: training and educational practices
Alberto Giacardi, Irene Caltabiano
- 323 Evaluation of the horizontal flow planted filters and anaerobic filter for the treatment of greywater in Venezuela
F.H. Gomez, S. Sorlini, F. Vitali, M.C. Collivignarelli
- 324 Costruire con la comunità
Veronica Brugaletta, Giorgio Ceste, Marco Ciavaglia, Natalia Da Silveira Arruda, Selene Guelfi, Janet Hetman, Giacomo Lanino, Carlo Mossetti, Simone Peditto, Valentina Sismondo, CRD-PVS Politecnico di Torino
- 325 Hervé Brugoux. Architetture in Madagascar
Laura Marino
- 326 Team C.A.S.A.
Mezzosangue lab, AKO

SESSION: ECONOMIC DEVELOPMENT: ACTORS, NETWORKS AND PROCESSES

Immigrant entrepreneurship

- 327 Immigrant entrepreneurship
Alessandro Arrighetti, Andrea Lasagni
- 328 Percorsi evolutivi e varietà delle imprese etniche in Italia
Alessandro Arrighetti, Daniela Bolzani, Andrea Lasagni
- 336 Immigrant women and entrepreneurship: strategies of development and forms of transnationalism
Deborah De Luca

Local development in international cooperation

- 345 Local development in international cooperation: issues, approaches and perspectives for a territorialisation of development policies
Egidio Dansero, Cristina Scarpocchi
- 349 Local development: some personal reflections
Massimo Pallottino
- 350 Territory and local development in the Italy-CILSS Fund
Egidio Dansero, Agnese Migliardi
- 356 Producers' cooperatives brokers or mirrors of social structure: a case study from Northeast of Brazil
Carla Inguaggiato
- 365 RENEP –Renewable energy for Palestine
Giulio Mondini, Sergio Olivero, Paolo Lazzeroni, Federico Stirano, Vito Antonio Ricci, Piercarlo Montaldo, Eliana Perucca, Carlo Micono, Guido Zanzottera
- 370 The contribution of local taxation to the sustainability of the Millennium Development Goal 7C in the regions of Louga (Senegal) and Niamey (Niger)
Maurizio Tiepolo, Sarah Braccio, Mario Artuso
- 378 Development cooperation and sustainable tourism in Mozambique: territorial systems and cultural heritage in the Zinave National Park
Sara Belotti
- 386 The ILO's approach to local development
Roberto Di Meglio
- 390 The territorial approach to local development and local governance: the UNDP ART initiative
Francesco Biciato

Microfinance: from theory to practice

- 393 Microfinance: from theory to practice
Pierluigi Conzo
- 394 Social inclusion through microfinance: an analysis of current approaches and new follow-up procedures
Andrea Bigio
- 402 The willingness-to-pay for insurance: evidence from Southern Ethiopia
Davide Castellani, Belaynesh Tamire, Laura Viganò
- 412 Microfinance in a post-disaster context: The case of the 2004 tsunami in Sri Lanka
Pierluigi Conzo, Leonardo Becchetti, Stefano Castrì, Davide Libralesso, Ilaria Urbinati

The Global economy and international development cooperation in emerging countries and new markets

- 419 The global economy and international development cooperation in emerging countries and new markets
Emanuele Fantini
- 420 The impact of emerging countries on Sub-Saharan African economies: factors of long-term growth?
Alice Nicole Sindzingre
- 429 Generalized tariff preferences for development and emerging countries: assessment and perspectives
Lorenza Mola
- 438 Crowding in the private sector under a developmental state: which role for international cooperation in Ethiopia?
Michele Boario, Emanuele Fantini

Posters

- 446 Processo di pianificazione delle catene alimentari per la creazione di sistemi alimentari in un'ottica di sviluppo locale
Andrea Calori, Andrea Magarini
- 447 Best practices in micro-finance: evidences from the International Award
Maria Cristina Negro, Dario Peirone
- 448 Community managed micro-finance experiences in Europe: the self-funded communities
Patricia Rodriguez Pulido, Francesca Lulli, Abdoulaye Fall
- 449 Economic growth, inequality and new measures of well being. Preliminary issues and fieldwork.
Andrea Salustri

SESSION: DEVELOPMENT COOPERATION METHODS AND APPROACHES

Open Data and Open Access: which knowledge sharing for development cooperation?

- 450 Open Data and Open Access: which knowledge sharing for development cooperation? Data and information organization for development cooperation and knowledge sharing
Susanna Sancassani

Beyond GDP: definition and making of new welfare indicators

- 454 Beyond GDP: definition and making of new welfare indicators, reflecting on conceptual and methodological issues
Elena Camino
- 456 From enforcement to dialogue. Listening to the voices of stakeholders: a challenge for university
Paola Bianca Camisani, Elena Camino
- 465 Sustainability: from the imaginaries to the indicators... and back? The case of India
Simone Contu, Elena Camino
- 474 Cultures of cooperation: strengthening the network with Gandhian economists
Nanni Salio

Rethinking international cooperation: the contribution of peace studies

- 480 Rethinking international cooperation: the contribution of peace studies
Gianluca Brunori, Giorgio Gallo, Massimo Pallottino
- 483 Development cooperation and the "Culture of peace" institutionalization
Pierluigi Consorti
- 487 Development cooperation, peace studies and asymmetric conflicts
Valentina Bartolucci, Giorgio Gallo
- 492 Why does international development cooperation need the contribution of peace studies? And why is peace research currently so marginal in international development cooperation?
Massimo Pallottino

- 500 Donors' conditionality in conflict scenarios: the difficult relationship between grant aid agencies and beneficiaries
Federica De Sisto

Development cooperation and internalization of universities

- 504 Development cooperation and internalization of universities
Angelo Stefanini, Alessandra Bonoli
- 506 Initiatives to start with implementing sustainability process into University of Bologna
Alessandra Bonoli, Francesca Cappellaro
- 511 International development cooperation and internationalization of the university: de-construct to re-construct with different types of knowledge
Angelo Stefanini
- 517 Global partnership, participation and development cooperation: the role of public consultations launched by the United Nations in building a post-2015 Global Agenda aiming at a multi-dimensional and multi-scalar development
Simona Epasto

From a donors/beneficiaries relationship to mutual transformation

- 525 From a donors/beneficiaries relationship to mutual transformation: imagining and evaluating the relational dimension in decentralized cooperation initiatives
Egidio Dansero, Stefano Rossi
- 527 New social pathways: voluntary organizations for development and international solidarity in Tuscany
Fabio Berti, Cristina Capineri, Lorenzo Nasi
- 534 La dimension relationnelle de l' "ici" dans les initiatives de coopération au développement. Reflexions sur les effets au Nord de la coopération décentralisée des parcs naturels du Piémont
Nadia Tecco
- 540 Entre théorie et pratique: Université de Turin et coopération décentralisée piémontaise. Quinze ans de recherche dans le domaine des déchets
Roberta Perna
- 548 Competences et pratique de coopération internationale en Senegal sur la route des talibés.
Giulia Gozzelino
- 555 Decentralised cooperation as a policy for local change and international partnership: the experience of Trentino in the Balkans and in Mozambique
Jenny Capuano, Sara Franch, Massimo De Marchi, Stefano Rossi, Paolo Rosso
- 563 Which future for a policy of Italian territorial cooperation integrated with the Western Balkan countries?
Andrea Stocchiero

Posters

- 571 To look at development from a Gandhian perspective. Cultural exchanges, educational opportunities and twinships between schools
Elena Camino, Maria Ferrando, Maria Elena Bo
- 572 A safe place for the victims of domestic violence: support to autonomy and development of local resources in the Balkans area (since 2006)
Maria Perino, Miranda Prosio
- 573 Fund for cooperation and knowledge
Andrea Pichelli
- 574 Multidisciplinary and interdisciplinary skills at the service of development cooperation: the activity of the CISAO of the University of Turin
Carlo Semita

SESSION: RURAL DEVELOPMENT, NATURAL RESOURCES AND ENVIRONMENT

Agriculture in developing countries between local rural development policies and international models of "land grabbing"

- 575 Agriculture in developing countries between local rural development policies and international models of "land grabbing"
Francesco Costamagna
- 577 The role of African governments in the land grabbing business
Hans Holmén
- 584 The commoditization of commons: the role of civil society and academic organizations in global land grabbing
Davide Cirillo

- 593 Large-scale land acquisitions and foreign direct investments: a challenge for international law
Stefano Montaldo
- 602 The socio-economic impact of large-scale land investments: the case of Mali
Astrig Tasgian
- 611 Land grabbing as a strategic game: a three level approach
Raffaele Bertini

Agro-biodiversity and diversified agri-livestock systems

- 617 Agro-biodiversity and diversified agri-livestock systems
Riccardo Fortina, Cristiana Peano
- 619 Cultural identity and conservation of indigenous and native diversity
Francesco Sottile, M. Beatrice Del Signore, Serena Milano, Cristiana Peano, Vincenzo Girgenti
- 627 Local fruits and nuts as a tool for the development of Afghanistan
Edgardo Giordani, Gregory Cullen, Pablo Degl'Innocenti, Giuliano Masini
- 636 Analysis of the sustainability of Slow Food Mushunu chicken presidium in Kenya
Daniela Fiorito, Nadia Tecco, Vincenzo Girgenti
- 641 The role of diversity and diversification for resilient agricultural systems
Nadia Tecco, Vincenzo Girgenti, Cristiana Peano, Francesco Sottile

Agriculture and urban and peri-urban breeding

- 646 Agriculture and urban and peri-urban breeding
Mario Mattoni, Daniele De Meneghi
- 647 Preliminary results on the development of innovative site-specific integrated animal health packages for the rural poor
Mario Mattoni, Rajinder Saini, Charles Mahama, Issa Sidibe, Burkhard Bauer, Oumar Diall, Antonio Rota, Raffaele Mattioli
- 654 La filière laitière en Afrique sahélienne: valorisation du produit local
Massimo Zecchini, Anna Cantafora
- 660 Diffusion de l'insémination artificielle bovine dans des fermes en zone urbaine et périurbaine de Niamey, Niger: perceptions et perspectives
Carlo Semita, Moumouni Issa, Hamani Marichatou, Abdou Moussa Mahaman Maaouia, Abdoukadi Djibril, Tiziana Nervo
- 668 Keeping dairy cattle in the Gaza strip: a case of study.
Cristiano Rossignoli, Francesco Di Iacovo, Roberta Moruzzo

Gender and rural development in cooperation programs

- 669 Gender and rural development in cooperation programs
Angela Calvo
- 671 International aid and gendered roles in agricultural value chains: some reflections from a rural development program in Northern Senegal
Cristiano Lanzano, Agnese Migliardi, Cecilia Navarra
- 680 The experience of IIDA: twenty-two years of frontline engagement of empowerment of the people and especially women in Somalia
Mariam Yassin Hagi Yussuf, Hibo Yassin Hagi Yussuf, Davide Rigallo
- 687 Gender mainstreaming in international development: an evaluation of strategies in health and education
Costanza Tognini
- 696 Agricultural gender indicators to improve development programmes: a critical approach
Francesca Alice Centrone, Angela Calvo

Access to water and the nexus with food, energy and land: themes and indicators for the post 2015 global development agenda

- 704 Access to water and the nexus with food, energy and land: themes and indicators for the post 2015 global development agenda
Emanuele Fantini
- 706 Environmental mainstreaming and integrated policies in development cooperation after Rio+20: the emblematic case of water and food
Massimo Zorzea

Posters

- 716 Water and sanitation access in the South-Western region of Burkina Faso
I. Angeluccetti, V. Coviello, S. Grimaldi, P. Vezza, A. Koussoubé
- 717 Sustainable biomass in developing countries
Federico Barigazzi, Stefano Bechis, Paolo, Giglio, Thomas A. Lawand
- 718 Application of solutions developed for DCS in Italy

- Stefano Bechis, Federico Barigazzi, Giulio Re, Thomas A. Lawand*
719 Milk and dairy products supply to urban and periurban market in Niger by the creation of a cooperative dairy unit
- Anna F.A. Cantàfora, Filippo De Monte, Simone Stella, Massimo Zecchini, Miro C. Crimella*
720 'Italy in Senegal': large-scale investments and support for family farming
Giorgio Roberto
- 721 Ten years of cooperation on sustainable agriculture between China and Italy
Maria Lodovica Gullino, Angelo Garibaldi, Massimo Pugliese, Corrado Clini
- 722 Creating and improving professionals in the management of livestock farming in the Sahelian area
Tiziana Nervo, Gabriella Trucchi, Moumouni Issa, Marichatou Hamani, Alhassane Yenikoye, Victorin Codjia, Carlo Semita
- 723 Environmental resources and decay in Cape Verde. A survey in Santo Antão and São Vicente
Stefano Orlandi, Angela Calvo
- 724 La riforma silenziosa. Come lo Stato ruba la terra
Alessandra Portis
- 725 The H₂Ortisol model. Sun and water management for a reliable and sustainable horticultural production
Maurizio Previati, Stefano Bechis, Davide Canone, Stefano Ferraris
- 726 Transfer of agro-livestock technologies for biodiversity preservation in Sahelian environment
Carlo Semita, Riccardo Fortina, Francesco Cristofori, Ousseina Saidou Touré, Moumouni Issa, Marichatou Hamani, Alhassane Yenikoye, Tiziana Nervo
- 727 Improvement of the dairy production chain in the rural areas of Ecuador through the use of repeatable teaching model
Martina Tarantola, Gianluca Pressi, Paolo Rodighero, Luca Nicolandi, Emma Della Torre, Ivan Garcia, Carlos Arce, Claudia Durando, Achille Schiavone
- 728 A multilingual approach to preserve vineyard landscapes' agrobiodiversity.
Francesca Varvello

SESSION: CULTURAL COOPERATION

Traditional medicines and local knowledge

- 729 Traditional medicines and local knowledge: policies, international aid and academic research
Elisa Bignante
- 731 Les relations entre la médecine traditionnelle et la médecine officielle au nord du Senegal: un étude comparative
Laura Sinagra Brisca, Sabrina Renzi

Cooperating for cultural heritage conservation

- 739 Cooperating for cultural heritage conservation
Francesca Declich, Cecilia Pennaccini
- 740 Cultural cooperation by way of ethnography: a Ugandan case study (Corus Project)
Anna Baral
- 747 The Italian ethnological mission to Ghana and cultural cooperation: heritage-making processes in the Nzema Area (South-West Ghana)
Mariaclaudia Cristofano, Stefano Maltese, Elisa Vasconi
- 754 The promotion of heritage inside the politics of tourism development of Mozambique. The role of international cooperation
Elisa Magnani
- 760 Sperimentazione di modelli per il rafforzamento delle istituzioni alle quali è affidata la conservazione del patrimonio culturale: casi di studio in Cina e in El Salvador
Mario Micheli

A better knowledge for a better cooperation

- 768 A better knowledge for a better cooperation: the contribution of human sciences for an intercultural cooperation to development
Ilaria Micheli, Mauro Tosco
- 769 The power of ethnic labeling: the role of international cooperation and academic community in shaping the new indigenous movement in Bolivia
Lorenza Belinda Fontana
- 777 Safeguarding the past to guarantee a better future. The role of ethnolinguistics in the Necofa Project among the Mariashoni Okiek Community
Ilaria Micheli
- 785 Strategies of land exploitation and management in the area of Aksum (Northern Ethiopia) Between the first millennium BC and the first millennium AD

Luisa Sernicola

- 791 The case of Zimbabwe Bushpump like a socio-technical network
Federico Silvestri

- 798 Language uses vs. language policy: South Sudan and Juba Arabic in the post-independence era
Stefano Manfredi, Mauro Tosco

Posters

- 803 Formazione linguistica e interculturale: I laboratori di francese per studenti non italo-foni e di lettura comparata dei miti letterari
Patricia Kottelat, Laura Rescia, Monica Pavesio

SESSION: ICT AND MEDIA FOR DEVELOPMENT

Blurring boundaries, reshaping technologies, merging know-hows: a reflexive approach to ICT4D in developing countries

- 804 Blurring boundaries, reshaping technologies, merging know-hows: a reflexive approach to ICT4D in developing countries
Iginio Gagliardone, Daniele Trincherò
- 805 China and the African internet: perspectives from Kenya and Ethiopia
Iginio Gagliardone
- 812 Mapping map Kibera: what is behind the map?
Elisabetta Demartis
- 821 M.U.S.I.C. – Mediterranean Urban Sounds Interactive Culture
Antonella Contin, Alessandro Frigerio, Paola Bellaviti

Communicating development and international cooperation

- 827 Comunicare lo sviluppo e la cooperazione internazionale
Silvia Pochettino
- 828 The communication of international cooperation and development in Piedmont
Sara Minucci
- 835 Ong e social media: i risultati di un'indagine di mappatura della presenza online delle organizzazioni non governative italiane
Donata Columbro
- 840 The representation of the cooperation north-south in the Catalan media
Xavier Giró

New technologies for inclusive urban development

- 846 The ICT for an inclusive urban development
Francesca De Filippi, Serena Pantanetti
- 848 The use of ICT for social inclusion and participative planning. A case study of "south-north" technology transfer
Francesca De Filippi, Serena Pantanetti
- 853 An effective strategy to develop efficient services for a digital-divided population
Riccardo Stefanelli, Abel Rodriguez de la Concepcion, Elisa Pievanelli, Daniele Trincherò

Posters

- 858 Participatory methodologies for a responsible tourism: the Zinave National Park (Mozambique)
Sara Belotti, Diathesis Cartographic Laboratory
- 859 Oltre la cartografia partecipativa: raccolta coordinate con palmari GPS e condivisione di geodati via web (2.0)
Antonio Maini

- 860 *Addendum*

THE ICT FOR AN INCLUSIVE URBAN DEVELOPMENT

Francesca De Filippi¹, Serena Pantanetti²

¹ Research and Documentation Centre in Technology, Architecture and City in Developing Countries (CRD-PVS), Politecnico di Torino, Italy - francesca.defilippi@polito.it

² Interuniversity Dept. of Regional and Urban Studies and Planning, Politecnico di Torino, Italy

The focus of the panel relates to the use of the Information and Communication Technologies for Development and social inclusion, a topic that has been recognized as a priority both on national and international levels, as inferred by the guidelines of European programs such as Horizon2020 (2014-2020) or from the Call 'Smart cities and Social Innovation' (MIUR, Italian Ministry of Education, University and Research).

'Social Innovation' is to be included as a part of the field of research and work of ICT4D (Information and Communication Technologies for Development) which, in fact, refers to the use of information and communication technologies in the field of international, socio-economic development and human rights. Possible implementations of ICT4D, between which it is intended to be done a comparison, concern, on one hand the methods and techniques of participation of the local community in identifying problems and resources and on the other hand the use and the integration of data collected in a relation with the database and the planning tools used by administrators and policy makers, as a basis for future interventions.

The use of ICTs technology platforms such as websites, wikis, interactive geographic maps and SMS have an important role in increasing the accountability of the public administration. Accountability is connected to the ability to respond and to clearly report the activities carried out. As an aspect of governance, this responsibility has been in the past and must be now and in the future a main topic of discussions when concerning about issues related to the public, non-profit and private sectors.

In addition to the papers hereinafter reported, other contributors to the Panel have been:

- Jean-Claude Bolay, Abigail Kern Centre Coopération & Développement, Ecole Polytechnique Fédérale de Lausanne: *“Technology and urban planning: What is appropriate for cities of the South?”*

The communication dealt with technologies, considered as catalysts for change, and their links to urban development. One of the main questions to be investigated for the next decades, in relation with the spatial and demographic growth of cities in Southern countries, is to know if we could discern appropriate technologies adapted to the specific urban contexts, affordable for users, socially acceptable, and efficient in order to improve concretely the present and future situation tackled by urban population, stakeholders and authorities. Particularly for developing and emerging countries, technological breakthroughs create wonderful opportunities but they may also convey risks that should not be overlooked. This leads to crucial questions on the nature of technological innovation and its capacity to fulfill the specific needs of these societies, characterized, in a lot of cities in Africa, Asia and Latin America, by limited financial and human resources. In a prospective approach, we shall try to identify priority sectors fostering a sustainable urban development, 4 at the initial moment of our research process: habitat; energies; water and sanitation; transport.

The aim of the contribution is: addressing the question of the existence of exclusively-urban technologies; exploring the framework conditions allowing the implementation of appropriate technologies in Southern cities; assessing the criteria allowing an access for all inhabitants to urban infrastructures and services; defining key elements we shall have to find in instruments used to translate the urban information in real applicable tools of urban planning, with a focus on “poor cities”.

- Elisabetta Demartis, Università degli Studi di Torino: *“Geographies for peace and development cooperation. Mapping and preventing violence and post-electoral disorders in Nairobi slums: an ICT4D participative project”*.

The general purpose of the paper is to reflect on how ICTs can improve the social issues of Developing Countries. The research starts from a participative project in three slums of Nairobi (Kibera, Mathare and Mukuru), where Map Kibera Trust set up a Ushahidi crowdmap platform to monitor the elections and prevent post-election violences and disorders. The methodology and approach used are a combination of semi structured questionnaire addressed to Map Kibera members, interviews of Kibera CBOs and Ngos, focus groups coupled with the author’s previous research on ICT4D.

The research aims to discover the driving forces behind the project and its impact on the community, first of all on people living in Kibera. In detail:

- What is the background of the members of the Map Kibera and how they are integrated within the territory of the slum;

- How can a participatory mapping project to prevent riots and post-election violence;
 - How many people were really involved in the project and how;
 - Can this project be considered a success which confirms the positive role of ICT in emergency cases such as elections;
 - How the project may involve slum dwellers and influence them positively.
 - The implications are significant in light of the ICT4D scenario and research, aiming at understanding how a technology can be used at its best to impact positively on a social issue. At the core of this idea is the belief that behind the crowdmap there is not just the software that allows the creation, but that set of social, spatial and human values that connect people with their own territory, in this case with one of the largest slums in Africa.
-
- Christian Quintili, Luca Fanelli, ActionAid Italia: *“Open Ricostruzione”*.

Open Ricostruzione is an Italian program which aims to guarantee a transparent reconstruction of Emilia Romagna, shocked by an earthquake in May 2012, through the use of digital technologies and the citizens collaboration. Open Ricostruzione is the result of an innovative cooperation between public institutions and civil society organizations: Emilia Romagna Region, ANCI, Anci Tel, Wikitalia Open Polis and ActionAid.

THE USE OF ICT FOR SOCIAL INCLUSION AND PARTECIPATIVE PLANNING. A CASE STUDY OF “SOUTH-NORTH” TECHNOLOGY TRANSFER.

Francesca De Filippi¹, Serena Pantanetti²

¹ Research and Documentation Centre in Technology, Architecture and City in Developing Countries (CRD-PVS), Politecnico di Torino, Italy - francesca.defilippi@polito.it

² Interuniversity Dept. of Regional and Urban Studies and Planning, Politecnico di Torino, Italy

ABSTRACT

The proposed paper aims to address the use of ICT for social inclusion. In peculiar this research study and experimentation examine both the application of participative methods and techniques, which support the community to identify problems and resources, and the possibility to integrate data and tools with the ones used by public stakeholders, as a starting point for future interventions. Participative planning is then intended as a way to think over the public action, either in the relationship with citizens or in the public space management. The proposed subject takes cue from the “Crowdmapping Mirafiori Sud” project outcomes. The project has been granted with 5x1000 funds from Politecnico di Torino for student projects and is now in the final phase. The aim of the project is to conduct a pilot experience in a participative and inclusive way in order to identify and categorize – returning information on a geographic map – the nature, the location and consistency of the obstacles/barriers which prevent vulnerable categories to access and use the public spaces of their neighbourhood. For this aim it is going to be used Ushahidi, an opensource platform which allows an easy crowdsourcing of data and the total transparency of their diffusion. One of the key aspect of using Ushahidi is the possibility to use mobile phones as a mean to send reports and receive updates, not needing an internet connection, which is often not available. Outcomes of data collection are then available and given to local and public actors, establishing a direct connection with the instrument used and the possibility to continue the project autonomously. This crowdmapping, and the transparency of the process, are useful not only to sensitize the population and to define the state of the art, but they mostly allow to interpret the results, analyzing the problem from the point of view of the community, the public actors and the scientists, hypothesizing active and participative solutions.

BACKGROUND

Increasingly over the last decade, there has been attention and expectations on the role that ICT based technology platforms such as websites and wikis, social media, interactive geo-mapping, and SMS and voice based reporting can play in increasing *accountability*, participation and transparency in the Public Administration (R. Avila et al. 2010; W. Reyes 2006).

Concerning ICT and social innovation rich are also the literature and the scientific debate, however the practical side is still under exploration and it need to be developed through projects and initiatives which effectively foresee participation and interaction of the involved actors.

Some exceptions are worth mentioning, among others: FixMyStreet in Uk, a platform where people can send information and discuss local problems about infrastructural issues or ePart and IRIS Beta in Italy. Their common goal is to offer an online service which allows citizens to interact with the public administration and to send information. They have a transparent interface and they are easy to use, they mainly allow to see the warning list and to check the status.

This paper aims to examine both the application of participative methods and techniques, which support the community to identify problems and resources, and the possibility to integrate data and tools with the ones used by public actors, as a starting point for future interventions. Participative planning is then intended as a way to think over the public action, either in the relationship with citizens or in the public space management.

THE CROWDMAPPING MIRAFIORI SUD PROJECT

The proposed subject takes cue from the “Crowdmapping Mirafiori Sud” project outcomes. The project has been granted with 5x1000 funds from Politecnico di Torino for student projects and is now in the final phase.

The project “Crowdmapping Mirafiori Sud” (www.polito.it/mapmirafiorisud) has been conceived and drafted under the lead of the Research and Documentation Center in Technology, Architecture and City in Developing and



Emerging Countries (CRD-PVS) at the Politecnico di Torino.

It is set in continuity with the ongoing research of the CRD-PVS, which seek to experiment the applicability of strategies, methods and instruments successfully developed in the Global South into urban contexts of traditionally defined “developed” Countries and nowadays in deep transformation or crisis.

As a recent experience the CRD-PVS organized in collaboration with UN-Habitat the international student design competition *Tur(i)ntogreen – farms in a town* (www.polito.it/turintogreen), with the aim of reflecting on the urban future. The Competition area was the Mirafiori Sud neighbourhood in Torino (Italy). This neighbourhood has been the emblem of the Italian motown during the economic boom, gradually decreased due to the work crisis and to the new production geographies; it will be in the next future the object of urban transformations with an high social and economic potential.

Furthermore Mirafiori Sud is an active neighbourhood, with dwellers keen to participate into the urban transformation projects, in order to overtake the actual situation of crisis and poverty. A rich and lively network of local associations support them in this sense.

Thanks to the tur(i)ntogreen competition, the CRD-PVS had the opportunity to get in contact and collaborate with some of the local actors and stakeholders such as the Fondazione della Comunità di Mirafiori Onlus and the City Council District.

The aim of the project Crowdmapping Mirafiori Sud is to conduct a pilot experience in a participative and inclusive way (together with the population and the local associations) in order to identify and categorize – returning information on a geographic map – the nature, the location and consistency of the obstacles/barriers which prevent vulnerable categories to access and use the public spaces of their neighbourhood.

For this aim it is going to be used Ushahidi, developed in Kenya to map in 2008 the violence in the post-electoral period, an opensource platform which allows an easy crowdsourcing of data and the total transparency of their diffusion (Hagen E. 2011). Ushahidi is nowadays used as a prototype and an example of something that could be done by matching information generated from citizens reports, media and NGOs into a geographical map.

One of the key aspect of utilizing Ushahidi is the possibility to use of mobile phones as a mean to send reports and receive updates, not needing an internet connection, which is often not available.

The project is addressed to citizens, dwellers of Mirafiori Sud neighbourhood, in particular to those who belong to the most vulnerable categories concerning accessibility and use of urban public spaces.

The problems identification, survey and mapping will be lead by the proponent group together with citizens representatives, identified thanks to the contribution of Fondazione della Comunità di Mirafiori Onlus.

Outcomes of data collection will then be available and given to local and public actors, establishing a direct connection with the instrument used and the possibility to continue the project autonomously.

This crowdmapping, and the transparency of the process, will be useful not only to sensitize the population and to define the state of the art, but they will mostly allow to interpret the results, analyzing the problem from the point of view of the community, the public actors and the scientists, hypothesizing active and participative solutions.

Because of this reasons, the project is meant to be a pilot project, relevant for other neighbourhoods and other cities, either at a national or international level.

METODOLOGY AND TOOLS

The project has been developed from April to October 2013, through the following phases:

- **Kick off.** A necessary phase of identification, contact and meeting with the local actors and representative of the categories identified as “vulnerable”. After the launch the students group planned meetings with both civil society’s representatives and public administrators in order to better explain the projects, advertise it and gather consensus to form a group which would have then make the first signals.



Fig. 1, 2 - Kick-off Meetings.

- **Definition of Criteria.** Starting from the interaction with local actors through a series of transect walks, and ending with a reflection on criteria, categories, standard identification of the phenomena to be signaled, for a coherent achievement of a data base. The formed group took some transect-walks along the neighbourhood in order to better understand the area, let the involved people discuss and transmit their knowledge and finally start looking for obstacles. The willing to involve people since the first steps is innate in the nature of the project, which doesn't want to have fixed prejudiced but it would like to look at the real obstacles for whoever lives the neighbourhood, either them being physical, mental, intellectual or visual.
- **Set up.** Starting from inputs acquisition from the local actors. Setting of the Ushahidi platform for a better response to the project's goals.

In order to better improve the system and to create an useful instrument, the students designed a website where all information and news can be found. An email address, a telephone and an SMS numbers were also established, in this manner civil society and public administration had all the means to get in contact and to send their posts.

As long as the aim of the project is to create and to use an instrument which has to be affordable, appropriate and easy to use, the team decided to implement the use of SMS to send information, which could be done by any mobile phone, both basic ones and smartphones.

The iXem Labs, a component of the Department of Electronics and Telecommunications of the Politecnico di Torino, which field of activity is mainly related to wireless systems and networks, radioplanning, radiofrequency propagation and high frequency electromagnetic compatibility, created a system which could send SMS direct to an email address. The system is based on the Arduino, a low cost open-hardware platform with the addition of a GSM\3G shield. The platform is connected to Internet by means of Ethernet connection. It may be also possible to set up a 3G connection in case of absence of Ethernet connectivity.

Once an SMS has been received, the program performs two automatic actions, it forwards the information to the Maps platform and sends an alert via e-mail to the administrators. Afterwards the Platform takes in charge the information received from the Arduino and with an automatic procedure it publishes the reporting on the Map. The new message is not public yet waiting for the approval by the administrators. In order to improve the reliability of the system, the Arduino platform logs all the data and actions on a local SD such that even in case of failure of connectivity it is possible to recover all data locally.

Furthermore it is possible to query the SIM card, by means of special string sent via SMS, in order to retrieve information about: status of SMS storage capacity, ask to re-send a particular SMS, delete all SMS, automatic reply, etcetera (De Filippi F., Pantanetti S., Stefanelli R., 2014).



Fig. 3, 4 - The Arduino-based system set up by iXemLabs (Politecnico di Torino).

- **Training.** With the support of the Fondazione della Comunità di Mirafiori, a group of inhabitants [30] is selected for collecting data on the area, stimulating the effect of crowdmapping. A period of training is conceived in order to understand how the platform works and how to send information by the means of SMS, emails, phone calls and website.
- **On field data collection.** The data collection begins through a direct analysis, with the representatives of the interested categories, and an indirect analysis based on the received inputs on Ushahidi. During June and July 2013 the group formed by the students and the involved citizens made different data collections in the neighbourhood, sending information direct from mobile phones, app and computers to the Crowdmapping Mirafiori Sud Website, email and numbers. Once the information is received, it must be approved by a member of the student team and then it can be seen in the map.

In the meanwhile an analysis of data is needed, in order to understand the weak points and to discuss with people This analysis is made by all the involved people using more traditional ways such as meetings. From this meetings other important information are gathered which could be seen on both the map and the website. This process is important to enhance participation: people are directly involved from the first to the last steps.



Fig. 5, 6 - Data collection.

- **On line.** Once the data collection is completed, the elaboration and dissemination phase will take place through preparation and distribution of the material (reports, videos, photos, etc...) to all the stakeholders involved in the project. All tools and materials can be used by the local actors, to continue the project in an autonomous way, eventually supported by the team in future interventions.

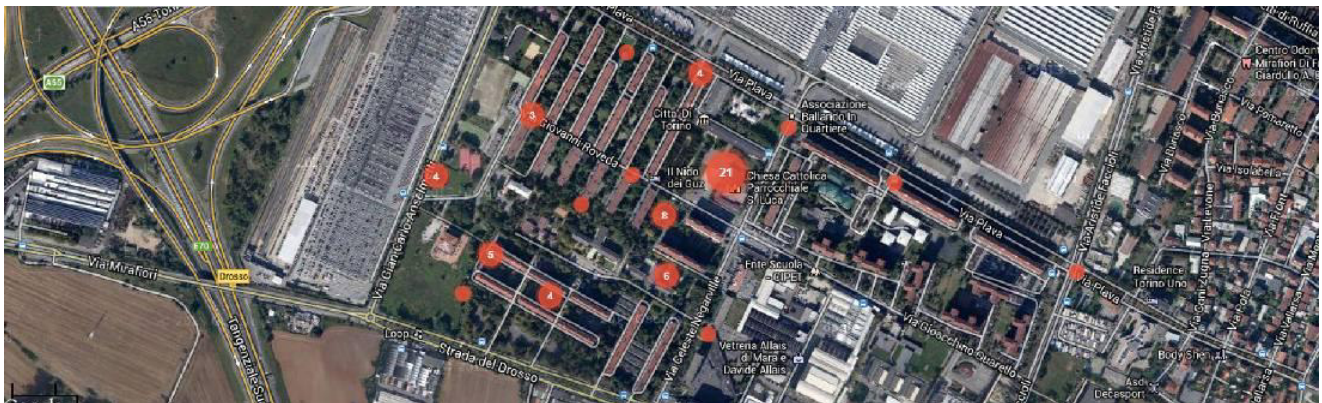


Fig. 4 - The Project Map.

CONCLUSIONS

The project outcomes are:

- having created a “smart” methodology and tool, based on the use of ICT (internet and mobile phones) to map the barriers and enhance the community participation and social inclusion; its use is not limited to identify and point out single interventions, but also to analyze phenomena at the urban scale;
- having built local capacities, stimulate participation and ownership;
- having enabled Local Authorities to access and use the data, to build and strengthen their "accountability";
- having set up a pilot scheme that could be replicated and expanded to other neighborhoods (or to other contexts).

ACKNOWLEDGEMENTS

The Crowdmapping Mirafiori team is composed by Cristina Coscia and Francesca De Filippi (scientific advisors and project leaders), Michela Bevione, Veronica Brugaletta, Grazia Cocina, Elisabetta Demartis, Janet Hetman, Fernando Menendez Cobelo, Serena Pantanetti, Giovanni Quattrocolo, Silvio Soldi, Giulia Venco, Chiara Viano (students); Silva Ferretti, Christian Quintili (external advisors).



REFERENCES

Books

- [1] Ramm F., Topf J., Chilton S., (2011). *OpenStreetMap: Using and Enhancing the Free Map of the World*, UIT Cambridge.
- [2] Reyes W. (2006). *Leadership accountability in a globalizing world*. London: Palgrave Macmillan.

Book chapters

- [3] De Filippi F., Pantanetti S., Stefanelli R., (2014). *ICT for social inclusion: A Crowdmapping approach to enhance participative planning. A pilot project in Mirafiori Sud, Torino*. Proceedings of the III Congress of the Italian University Network for Development Cooperation (CUCS) Imagining cultures of cooperation: universities networking to face the new development challenges. Turin, 19-21 September 2013.

Journal articles

- [4] Bolay J.C., & Kern A. (2011). *Technology and urban issues: What type of development is appropriate for cities of the South?*. Journal of Urban Technology, 2011.
- [5] Bolay J.C. (2004). *World globalisation, sustainable development and scientific cooperation*. International Journal of Sustainable Development, 7, Wolverton Mill, UK.
- [6] De Filippi F., Balbo R. (2010). *Planning for real: ICT as a tool in urban regeneration*. Built and Human Environment Review, University of Salford.
- [7] Dykstra, Clarence A. (1939). *The Quest for Responsibility*. The American Political Science Review, 33 (1).
- [8] Hagen E. (2011). *Mapping Change Community Information Empowerment in Kibera*, Data Democracy, Innovations, 6 (1), MIT Press.
- [9] Kapoor, I., (2005). *Participatory development, complicity and desire*. Third World Quarterly, 26, Routledge.

Online documents

- [10] Avila R., Chak S., Gomicki J., Victor K., Presley S., Fibeiro M., et al. (2010). *Technology for Transparency: The role of technology and citizen media in promoting transparency, accountability and civic participation*. http://globalvoicesonline.org/wp-content/uploads/2010/05/Technology_for_Transparency.pdf. Accessed 13 January 2014.
- [11] Crowdmapping Mirafiori Sud Website <http://www.polito.it/mapmirafiorisud>. Accessed 13 January 2014.
- [12] Halliday J. (2010). Ushahidi: giving citizens the power to put news on the map, The Guardian. <http://www.theguardian.com/media/2010/aug/16/ushahidi-haiti-news-map>. Accessed 13 January 2014.
- [13] Ushahidi Website <http://ushahidi.com/about-us/press-kit>. Accessed 13 January 2014.
- [14] McNamara, Kerry S. (2003) *Information and Communication Technologies, Poverty and Development: Learning from Experience*. World Bank, Washington D.C., USA.
- [15] <http://documents.worldbank.org/curated/en/2003/01/5158768/information-communication-technologies-poverty-development-learning-experience>. Accessed 13 January 2014.

AN EFFECTIVE STRATEGY TO DEVELOP EFFICIENT SERVICES FOR A DIGITAL-DIVIDED POPULATION

Riccardo Stefanelli*, Abel Rodriguez de la Concepcion*, Elisa Pievanelli*, Daniele Trincherero*

*iXem Labs, Politecnico di Torino, Italy - info@iXem.polito.it

ABSTRACT

The project consists of a medium scale Internet of Things and Internet of Services experiment, in a rural village in the Italian Countryside, where population is relatively aged and the village is almost digitally divided from the neighboring cities (and consequently from the whole World). A wide band wireless network with full coverage has been built, to provide several remote services: Internet access, intelligent house (garden) control, remote assistance to people. Internet of Things and Internet of Services activities are realized by means of low cost, open technology. A relevant application is represented by tele-assistance to elder people living alone. The results obtained during the first eighteen months of experimentation demonstrate a strong participation of the local population, a reduction of the house management costs, together with an increase of safety and security, which are particularly critical in rural scenarios, far from the accessibility levels typically found in metropolitan city.

INTRODUCTION

The digital gap in rural (remote) regions is considered a strategic issue for Developing, but also Developed Countries, a clear limitation of living conditions, and one of the most significant causes of emigration, loss of popular heritage and traditions. The connection to the digital World represents the most significant way to provide access to information and cultural exchange, but also to basic social services like telemedicine and distance learning. Additionally, in the very last years, a digital channel is more and more requested to transport information related to Things and Services.

In rural scenarios, the possibility to acquire, share and control information associated to house and/or environment may signify not only additional comfort, but also energy saving, costs reduction, improved life quality, advanced security, health assistance. Nonetheless, transforming a rural living place into an intelligent one does not make real sense, without a network. When a network is available, Things and Services may be inserted in a virtual social network, as the Humans do. The inhabitants may share, compare, and optimize house managing. Or, even more, they could delegate management to somebody else. Security control can be assigned to an external authority. Energy consumption can be administered at a Municipality level. Health assistance can be supervised by a medical unit.

Bringing a networked intelligent platform to rural places is normally limited by bandwidth availability and end-users technological skill. Network operators have no significant advantage to operate in the Countryside, because of the restricted number of possible subscribers. Furthermore, rural citizens are typically unfamiliar with high technology and intelligent systems.

Starting from these basic concepts, we have developed an implementation scheme to facilitate adoption of intelligent systems in the Countryside. It is based on the realization of a very low cost, wideband last-mile Intranet network, on the construction of extremely low cost sensors and controllers, on a strong participation of the inhabitants, on the enrolment of University students during the design, realization and technological transfer phases. The scheme is being successfully implemented in a peculiar location in the Italian Countryside.

THE LOCATION

The experiment has been organized and developed in the Municipality of Verrua Savoia, in the Monferrato region, a huge hilly, mainly agricultural area in North-Western Italy, not far from the city of Torino. The village covers a territory of about 16 square kilometers, where about 1400 inhabitants live, with half of the population aging more than sixty-five years old. Very few factories and commercial activities are present; the economy is mainly agricultural, for ninety percent devoted to family needs. Most of the people aging between 15 and 60 are commuters and travel far from the village, staying outside for a large part of the day. Topographically, the Municipality area is formed by more than thirty islets, some of them being connected exclusively through dirty roads.

As a business case, for ICT companies, the Municipality is a losing affair: for long times, no wideband connectivity has been provided to the inhabitants and still now, several hamlets are not provided with cabled ADSL connectivity.

The relative distance from the city, the average age of the population, the significant presence of commuters and the lack of ICT facilities and ICT know-how make the selected location a representative case of a general remote rural context.

THE EXPERIMENT

To set-up any kind of network study, the first step is represented by bandwidth availability and end-user connectability. To bridge this initial gap, at first, a Municipality wireless network has been realized, in order to interconnect all the hamlets of the village [1] [2]. Figure 1 shows the orographic profile of Verrua Savoia and the position of the Hyperlan base stations. To lower the costs and avoid expenses, network design the construction of hardware components have been developed by a first group of University students, during their courses or internships [3] [4]. Citizens have participated to the network realization, installing autonomously client equipments for connecting to the network. Additionally, Internet connectivity has been provided for free to all subscribers, transporting bandwidth from an Internet exchange to the village by means of a high performance point-to-point radio-link.

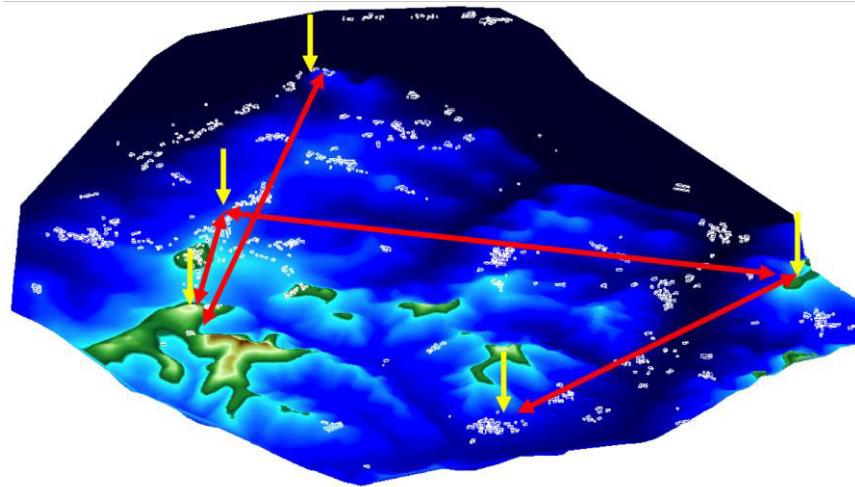


Fig. 1 - Orographic representation of Verrua Savoia: yellow arrows indicate the Hyperlan Access Points, red arrows show backbone links and white boxes are houses.

Once this first phase has been completed, we have started developing home automation facilities for each subscriber. Citizens have been provided with one controller that can be connected to several sensors, a large number of personal Ethernet devices, and actuators. The controller, the sensors and the actuators have been built by means of extremely-low-cost devices, developed on purpose for larger scale applications in rural environments [5]. These open hardware solutions have been designed and realized by a second group of University students (Figure 2). Among the several parameters that can be monitored are: temperature and humidity of the relevant rooms, unexpected gas/water leakages in the living environments, mechanical and vibrational state of buildings, ground humidity. The list of Ethernet devices comprises cameras, loudspeakers, light detectors, etc. As actuators, the controller is able to manage thermostats, fuel burners, stoves, automated wells, alarming units and again any kind of Ethernet based actuator.

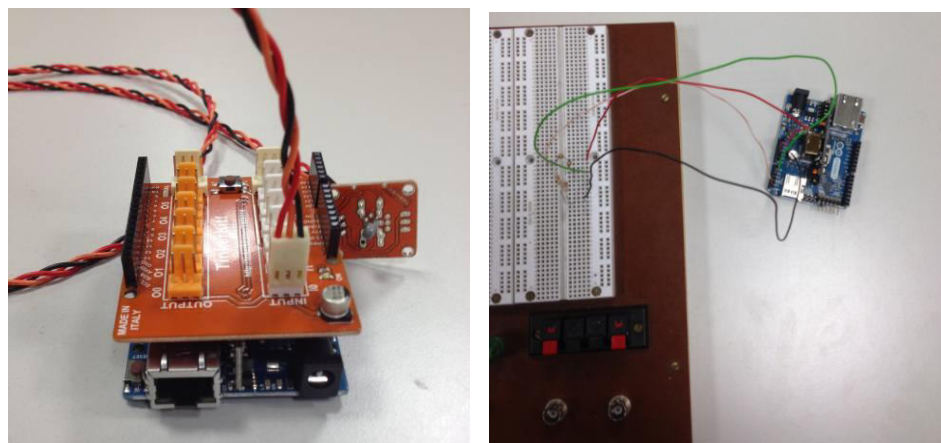


Fig. 2 - Examples of prototypes manufactured in our Lab, ready for installation in the house selected for the preliminary application of the experiment

In the same time, a customized network environment, together with a dedicated web platform, has been developed, to favor an easy and integrated management of the sensing and controlling components. The collected information is transferred to a general monitoring console, hosted in the Municipality building, which offers a global overview of the situation of the whole village, and allows an upper and immediate level of protection and intervention. Its functionality can be undertaken by the owner or delegated to the Municipality console, depending on the presence/absence/capability of the house holder himself.

Moreover, we are developing a dedicated infrastructure to provide remote control of the living conditions of elder people, without affecting their privacy. The system is realized thanks to an extremely low cost wireless passive tracking platform, which detects information about the activity inside the house. A dedicated algorithm processes the acquired information, thanks to statistical comparisons and cross-correlation computations originated from data acquired during certain amounts of periods. This solution does not require any action by the inhabitant, neither wearing a device, nor being confident with technology: hence it can be exploited to a very general case.

RESULTS AND OUTCOMES

The network has been constructed between August and October 2010 and the number of subscribers has been increasing continuously, becoming approximately 240 in September 2013 (over a total of about 600 families). The participants distribution on the territory of the Municipality of Verrua Savoia is shown in Figure 3. Figure 4 shows temporal evolution of the subscribers from August 2010 to September 2013. Surprisingly (but not very much), not only young people were interested to the new technology: in fact, the Municipality was forced to change the teaching program of the local Third Age University, inserting (between a cooking lecture and a gardening one) a dedicated Introduction to ICTs. User appreciation about the network is very high. Even if network management is carried out by University students and there is not a structured “customer service”, citizens participate actively to network control, being always the first to document network problems and sometimes providing suggestions. During last winter, when a huge snowfall covered the solar panels compromising power supply of half the network backbone, 10 volunteers offered to climb up the hills and put into service the infrastructure.

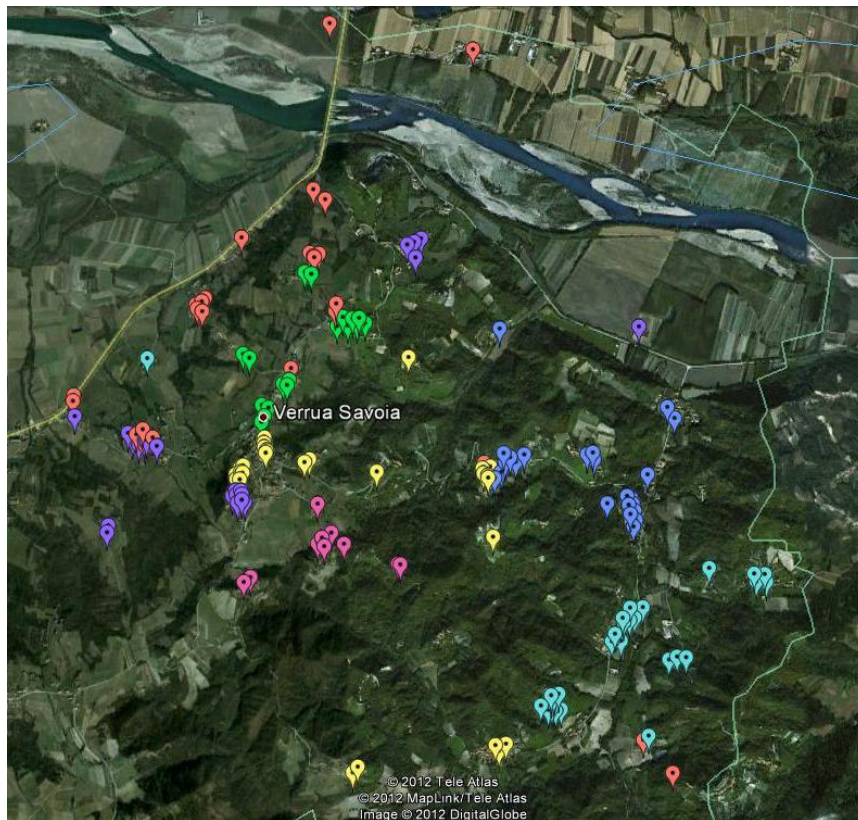


Fig. 1 - Participants distribution in the territory of Verrua Savoia.

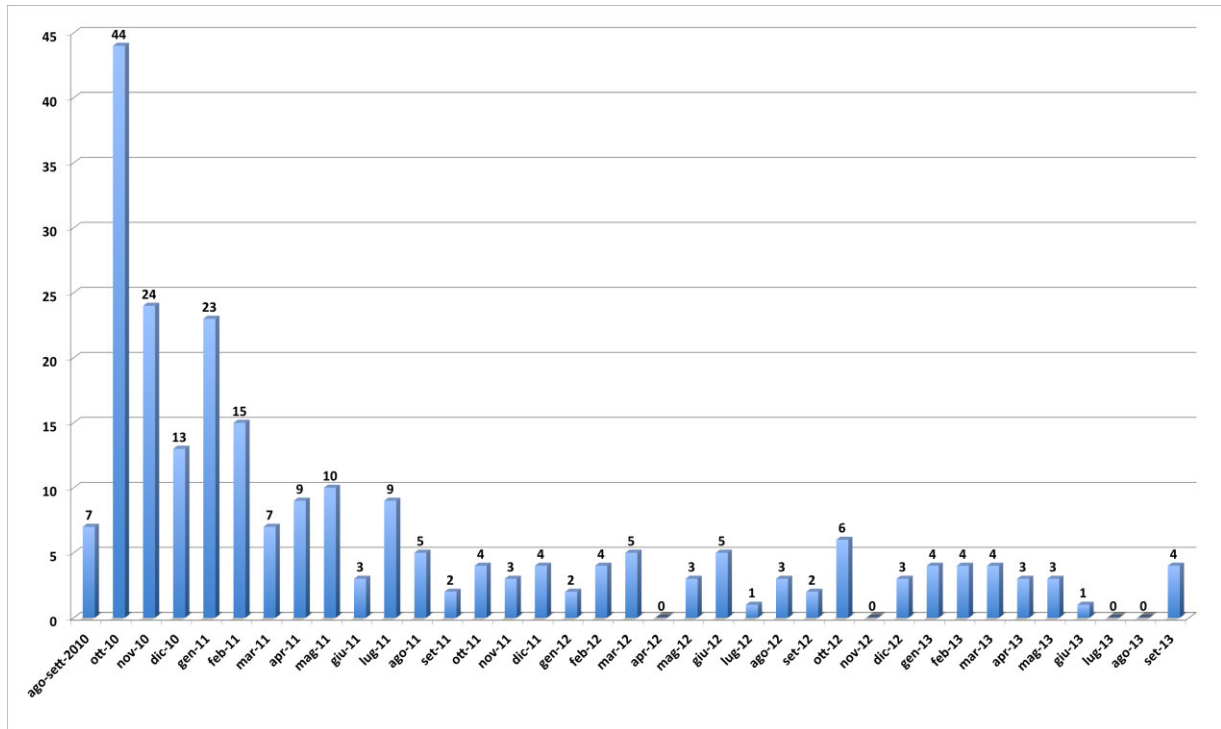


Fig. 2 - Temporal evolution of the number of participants from August 2010 to September 2013.

The preliminary results measured in the house that has been automated since the beginning of winter 2010-2011 are showing dramatic money savings, primarily due to the remote control of the sensing equipment. They exhibit a reduction of almost the 50% of the heating energy consumption and about 25% of garden watering. As a matter of fact, this early result could not be considered as representative of the functionality of the whole system, but it represents an interesting starting point that generates important perspectives for the continuation and implementation of the project on a larger scale. Figure 5 shows one of the temperature sensors mounted on the wall of the bedroom, while Figure 6 presents a wood stove connected to the controller.

Fig. 3 - Temperature sensor mounted on wall bedroom.



Fig. 4 - Wood stove connected to the controller.



Data regarding the following winter season (2011-2012) are more representative, as they are been applied to a larger number of houses. Unfortunately, they are affected by an unpredictable trigger: winter 2011-2012 has been the coldest of the last 100 years in Europe. Nevertheless, we have still measured an average reduction of the 10% of the expenditures, between early November and late February. This datum should be analyzed and disaggregated, or, even more, compared to further data acquire in the next winter periods.

On October 28, 2011, the inhabitants have been involved in a photographic competition with subject related to their own home equipment installation. The competition has gathered a large number of participants (http://www.ixem.polito.it/research/Verrua_2010/Concorso_fotografico_2011_e.htm): one more demonstration of the passion generated by the project.

REFERENCES

- [1] Brunazzi, D., Stefanelli R. and Trincherò D. "*Experimental Analysis of the Sensitivity to Interferences in Geographical Unlicensed Wireless Networks*", URSI GASS 2011, Istanbul, Turkey, 13-20 Aug. 2011.
- [2] Trincherò, D., Galardini, A., and Stefanelli, R. "*Comparative analysis of extended geographical wireless networks based on diversity transmission systems*", Kaleidoscope: Beyond the Internet? - Innovations for Future Networks and Services, 2010 ITU-T , Pune, India, 13-15 Dec 2010.
- [3] Trincherò, D., Stefanelli, R. and Galardini, A. "*Reliability and scalability analysis of low cost long distance IP-based wireless networks*", Innovations for Digital Inclusions, 2009. K-IDI 2009. ITU-T Kaleidoscope, pp.1-6, Aug. 31-Sept. 1 2009.
- [4] Trincherò, D., Galardini A., Stefanelli R., Fiorelli B. and Cambiotti F. "*MKM networks: a solution for low cost, long distance radiocommunications.*", First International Workshop on Wireless Broadband Access for Communities and Rural Developing Region, Karlstad, Sweden, 11-12 December, 2008.
- [5] Trincherò, D., Stefanelli, R., Brunazzi, D., Casalegno, A., Durando, M. and Galardini, A. "*Integration of smart house sensors into a fully networked (web) environment*", Sensors, 2011 IEEE, Oct. 2011.