

1st Inter-Regional Smart Agriculture Forum

Role of GDCO Telecentres in Smart Agriculture



Eindhoven Netherland



Gedaref Digital City Organaization



Strong Win-Win PPP for Community Development



الهيئة القومية للإنصالات
National Telecom. Corp.



وزارة الاتصالات
وتكنولوجيا المعلومات
MINISTRY OF COMMUNICATIONS
AND INFORMATION TECHNOLOGY



RAISING
the FLOOR
INTERNATIONAL



World e-Governments Organization of
Cities and Local Governments



Sudan Open University



GDCO - SUDAN



e- India 2007 award



e- India 2008 award



e- India 2009 award

❑ **GDCO Sudan is NGO** founded by the **Digital City of Eindhoven (DSE)** through the twinning between Gedaref and Eindhoven (Netherlands) municipalities & **DSE** donated **750 computers to GDCO**



❑ **GDCO is winner** of 7 national and international **ICT4D awards**



**Best Telecentre album
2011 Philippines**



eWorld 2011 award



**Sudanese best NGO
ICT award 2011**

Global Telecentre Network



Monthly Webinar Intel



قيادات التليسنتر العربي مع الدكتور اخضر رئيس التليسنتر العالمي ومساعد بيل فيتس (مايكروسافت)

Telecentre is a public place equipped with computers, internet and ICT equipment's to collect information to help people facilitate their lives
Network of 87534 Telecentres in 52 countries , with 76 national Telecentres network and 6 regional networks

Sudan National Telecentre Academy (SuNTA)



- GDCO organized the 5th EATLF (29 Global Telecentre leaders from 17 countries) & SuNTA was declared as the 1st Telecentre Academy in Africa, MENA & 13th in the world June 2008
- GDCO appointed Sudan Open University to be our representative in the TACU @ IGNOU India





Gedaref Digital City Organization

GDCO - SUDAN



Gedaref University



Dr. Agnes Deaf School Telecentre



توصيل إتحاد المرأة القضاة للتقنية 2009



مركز استاد ام درمان الرياضي مع SSIT



Eindhoven Mayor Visit to Deaf Telecentre



تمكين ام شجرة الثانوية بنات من التقنية 2008

e-Agriculture and its Supportive Projects

- e-Agriculture Co-ordination
- Gedaref University e-Infrastructure support & Telemedicine
- Connecting people with disability
- Out of schoolchildren e-learning pilot project
- e-Government & Telecentres
- Empowering women through ICT



Training and capacity building



Gedaref Univ. e-Support



Telemedicine

How GDCO Projects are Developed?

- ❑ GDCO looks for a problem facing the community or end users
- ❑ Develop a win-win public private people partnership PPPP 2 share – knowledge, experiences, best practices 4 better implementation 2 save time & money
- ❑ Design the project phases to achieve maximum MDGs & SDGs
- ❑ e-Agriculture end users are **GMAC**, farmers, animal owners and traders or business community



Gedaref Mechanized Agriculture Corporation (GMAC)

- GMAC is the biggest mechanized rain fed agriculture scheme in Sudan
- It grows more than 10 millions Feddan of crops (1 Fed = 1.038acre) mainly sorghum, sesame, millet, cotton, sunflower ,water melons 4 seeds.
- In addition, Gedaref State has millions of acres natural grazing areas (pastures), forestry and millions of animals (sheep, camels, cows).



Gedaref silo

the biggest In Sudan 1964



Gedaref State traditional
& common houses



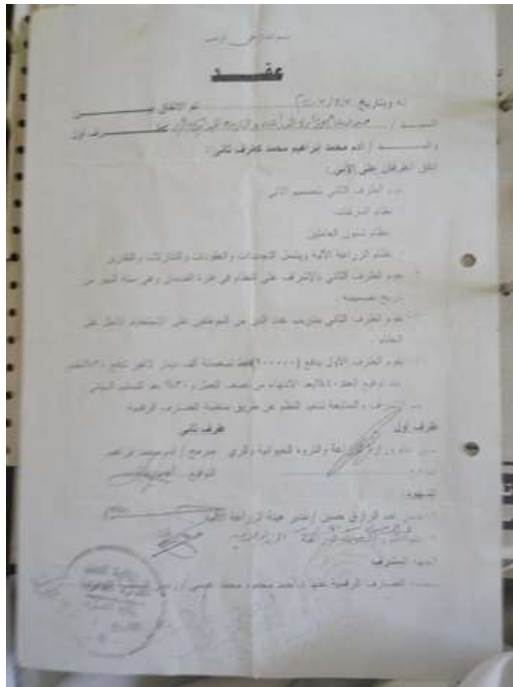
MoU 03/11/2007
e-Agriculture

e-Agriculture Projects Objectives

- ❑ Speed up transactions between GMAC and other end users specially farmers
- ❑ Agriculture development through ICT specially GIS & GPS 2 monitor the agricultural resources from being depleted or eradicated
- ❑ Help farmers to monitor their farms from any place in the world through satellites (geographical coordinates, GPS & GIS).
- ❑ Improve quality of training, capacity building and skills development through ICT in the agricultural sector.
- ❑ Empower GMAC to improve the Gedaref State Natural Resources e-Map

- ❑ Knowledge exchange to share experiences and best practices through strong win-win partnership (PPPP) to improve agricultural practices to increase crop yield and decrease cost of production
- ❑ Development of online crop and animal market even for illiterates or low computer skills communities
- ❑ Using of ICT (internet) for disaster control
- ❑ Improve other services to the rural communities specially health, connected unconnected, empowering women through ICT and out school children e-Learning
- ❑ achieve the millennium development and sustainable development (MDGs & SDGs) **GOALS**

GMAC, Contract, Telecentre & MoU



03/11/2007



e-Agriculture Implementation Tools

- ❑ Establishing Telecentres 4 training, capacity building and ICT skill development 4 GMAC and farmer unions staff with basic computer courses , internet, AutoCAD, GPS & GIS
- ❑ Developing software (Big Data) for 10,000 farmers/farms
- ❑ Demarcation of farms geographical coordinate by GMAC
- ❑ Using internet (ICT) for disaster control (Bird Flu & Ebola)
- ❑ Agric. extension website for crop and animal prices



التاريخ	الرقم	الاسم	العنوان	البريد الإلكتروني	الهاتف	الموقع	المنتجات	الخدمات	التعليقات	التعليقات	التعليقات	التعليقات
21/06/2012	001	008	005	007	000	003	002	004	006	009	010	011
21/06/2012	012	013	014	015	016	017	018	019	020	021	022	023

March 2006



Developing software (Big Data) for 10,000 farmers/farm @ GMAC

بيانات مزارعي الحوري

الرقم:

الاسم:

رقم الهاتف:

رقم المشروع:

نوع التخطيط:

المنطقة:

المساحة:

رقم التكريت:

تاريخ تجديد العقد:

تاريخ انتهاء العقد:

ملاحظات:

لديه تلفون?

احترس من ممتلكته

رجوع | بحث | حذف سجل | تحفظ سجل | إضافة سجل

برنامج حصر وتصنيف المزارعين

رقم المزارع:

الاسم:

العنوان:

رقم الهاتف:

رقم المشروع:

نوع التخطيط:

المنطقة:

المساحة:

رقم التكريت:

تاريخ تجديد العقد:

تاريخ انتهاء العقد:

ملاحظات:

لديه تلفون?

احترس من ممتلكته

رجوع | بحث | حذف سجل | تحفظ سجل | إضافة سجل

Data entered from GMAC files 1960s for 9 month and 3 years monitoring and updating for free with 90% cost less from the market price

GMAC 16 Agricultural Reports & GDCO Certificate

جدول يوضح تنفيذ التخطيط للمشاريع الزراعية المطرية
في التقرير الذي قدم في ملتقى المعلومات بنيالا
الورقة المشتركة بين الزراعة الآلية والقضارف الرقمية

النسبة	المتنفذ	الخطوة	العام
%100	2739500	2739500	2004-1968
%85	512000	600000	2005
%100	731000 + 1365547 فدان غابات	2000000	2007-2006
%94	515049+972000	1590000	2008
	تم رفع جميع الإحداثيات وتحديد مواقع البواكم وتم زراعة 461 بيكم في مساحة 510000 فدان	1150000	2009
	6104096	8079500	الجملة

التقارير

حالة المشاريع حسب (البنجار+السيوان+المستكر) لكل المناطق	المشاريع حسب حالة الري (كل المناطق)	كل كبار المشاريع
حالة المشاريع حسب (البنجار+السيوان+المستكر) لمنطقة صعبة	المشاريع حسب حالة الري (منطقة صعبة)	كل كبار المشاريع
المشاريع حسب الاستفاد (كل المناطق)	المشاريع حسب حالة التصريف (كل المشاريع)	كبار المشاريع لمنطقة صعبة
المشاريع حسب الاستفاد (منطقة صعبة)	المشاريع حسب حالة التصريف لمنطقة صعبة	صغار المشاريع لمنطقة صعبة
سجل اللبديبات لكل المشاريع	المشاريع حسب آخر عام جديد	كل المشاريع لمنطقة صعبة
رجوع	سجل اللبديبات لمشاريع لمنطقة صعبة	

Now GMAC there are more than 50 reports



Achievements

- ❑ **quality training, capacity building and skill development (agriculture sector)**
- ❑ **quick transaction between GMAC and farmers**
- ❑ **16 agricultural reports in few minutes (crops, rainfall,)**
- ❑ **Solving conflict (farmers, shepherds and forest)**
- ❑ **Accessibility to crop and animal markets prices online even for illiterate or low computer skills and blinds**
- ❑ **Uses of ICT for disaster control (bird flu & Ebola)**
- ❑ **Empowering GMAC to develop Gedaref State National Resource e-map**

Gedaref State National Resources e-Map



**Gedaref State
Natural Resources Map**



**Farms plots with
Geographical coordinates**



**Solving conflicts
Farmers, forest, Sheppard**



Crop and Animal Web Portal

EasyFarmer or Cloud Computing (Future) for low computer skills or illiterate farmers launched (Pilot) @ WSIS 2013 ITU Geneva



Product Name	Arabic Name	Higher price	Lower price	Quantity	Audio
اسم المنتج	العربية اسم المنتج	اعلى سعر	ادنى سعر	الوارد بالجيول	سمعي
ذير	ذير	700	690	230	0:11
قزينة	قزينة	560	555	12250	0:11
صفراء	صفراء	600	590	347	0:14
مت	مت	570	560	69	0:12
عكر	عكر	570	565	1248	0:11
تزون	تزون	780	770	0	0:10
دخن	دخن	760	755	347	0:08
ونداكو	ونداكو	700	690	133	0:10

May 2015

2005	2006	2007	2008
2009	2010	2011	2012
2013	2014	2015	2016
2017	2018	2019	



<http://easy123.org/sudan/>

Out of Schoolchildren (e-Agriculture Ecosystem)

Thousands of children are traveling with their families and their animals looking better grazing areas and water resources due to climate change

- ❑ Using solar laptops to connect children
- ❑ Solar energy used also for charging mobile to increase internet penetration
- ❑ Elimination the resources of illiteracy
- ❑ Better quality with low cost education
- ❑ Replicated in 10 nomads areas



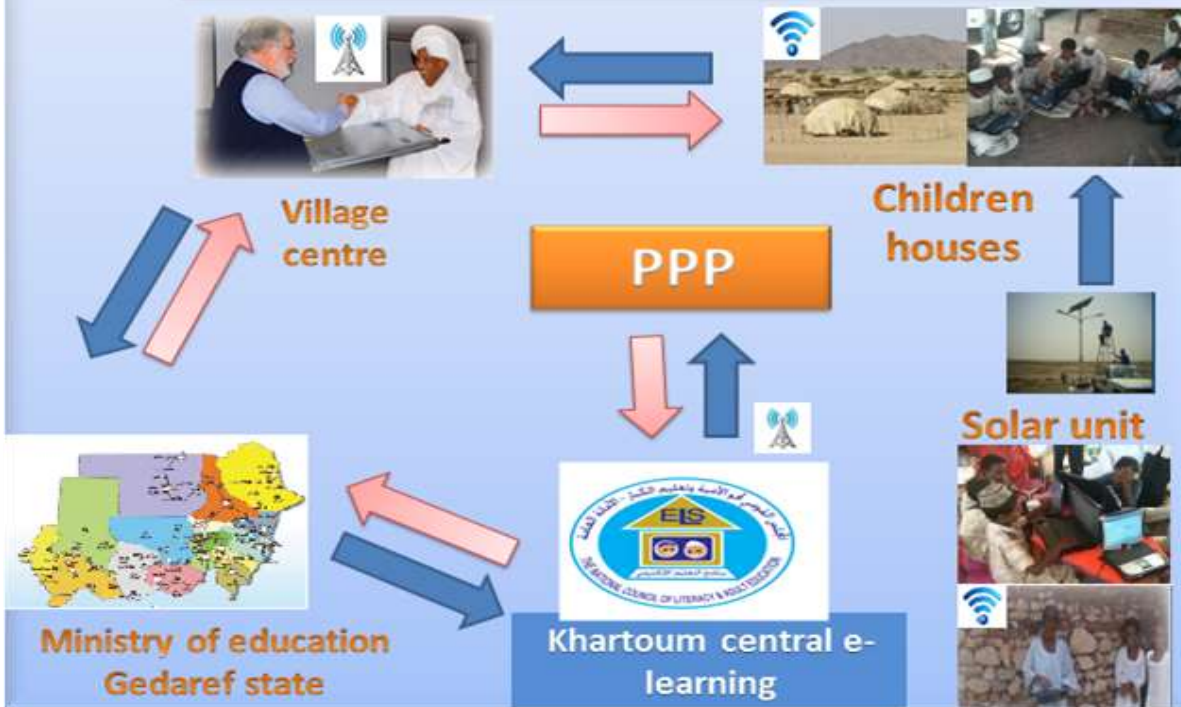
3rd Global Forum on Telecentres | 3^{er} Foro Global de Telecentros
Chile2011

Empowering Productivity and Development at the Community Level
Estructurando Productividad y Desarrollo en los Centros Comunitarios



نائب الوالي يتسلم إتفاقية التعليم الإلكتروني بالورشنة 2009

Out of school children e-learning network



مركز التدريب بقرية ودالمشمير ونسبة امية تفوق 99%

Many partners including Gedaref **Ministry of Education**, Alhafad University **Gedaref University**, UNESCO, **Adult Aducation** and more



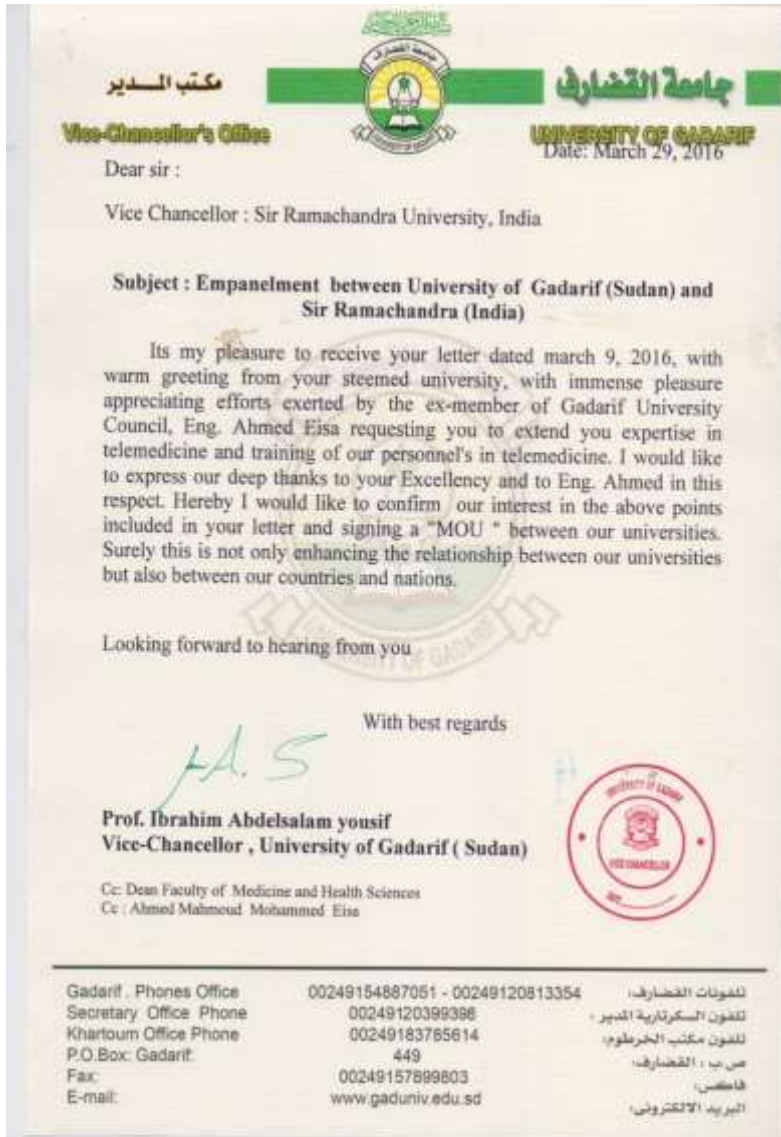
مركز التعليم الالكتروني للاطفال خارج المدارس التجريبي بالمفرح



وزير الدولة للتعليم الاتحادي والولائي والمعتمد في زيارة لمركز المقرح



إنفاذية التعليم الالكتروني للاطفال خارج المدارس 2009



GDCO Telemedicine Unit at Faculty of Medicine Univ. of Gedaref

The following Are point of agreement for (MOU)

- 1) SRMC staff to Train Gadarif University staff at Sudan about telemedicine.
- 2) Train 3 staff of Gadarif University for 1week at SRMC in Telemedicine Dept.
- 3) SRMC technical support to start new colleges.
- 4) Technical support in establishing 3 Telemedicine centers in Sudan including omshagara.
- 5) Online Consultancy in – cardiology, Radiology, Laboratory, Dermatology.
- 6) Training program for final year students of your University.
- 7) Gadarif University and GDCO will encourage Kassala University, Red Sea University, Gezira University, Sinar University, and Gadarif Academy of Health to join the project.
- 8) Support/Implementation of research programs.
- 9) All universities' partners will support international patient referral to Sri-Ramachandra Medical Hospital

e-Agriculture & Ecosystem Growth

- ❑ The e-Agriculture project has great contribution to the growth of the ecosystem in Gedaref State including
- ❑ Solving the conflict between farmer, shepherd and forest through satellites
- ❑ The new farm area is 900 feddan (1 feddan=1.038 acre) instead of 1000 feddan and the left 100 feddan is to grow trees (forest)
- ❑ Establishing e-learning project for [out school children](#) and replicated for the nomads in rural area who are displaced due to climate change
- ❑ Future Telemedicine, deaf e-School and many services

GDCO Projects and SDGs



GDCO works on SDGS implementation in

- UN-SDGs [SDG knowledge platform](#) 17 GOALS
- UN-ITU [iwrite4wsis initiative](#)
- UN-ITU [WSIS action lines \(11 lines\)](#)
- UN [Global Compact Sudan network](#) (10 principals)
- UN FAO [e-Agriculture Organization](#)



Click on the photo above



Click on the photo above



Click

WSIS ACTION LINES AND SDGs MATRIX

SDG	WSIS Action Line	WSIS Action Line	WSIS Action Line
1	1	2	3
2	4	5	6
3	7	8	9
4	10	11	12
5	13	14	15
6	16	17	

Click on the photo above

- ❑ GDCO e-Agriculture project and its supportive projects are a win-win partnership (Goal 17) through it you can achieve all the others
- ❑ Proper management reduce the cost of the production and increase yield for better food security (poverty & hunger)
- ❑ If you increase yield the farmers will get more profit or money to provide education and health to their families.
- ❑ The project deals with training, capacity building
- ❑ illiteracy irradiation
- ❑ e-government & Telemedicine
- ❑ empowering women through ICT
- ❑ Connecting people with disabilities
- ❑ Using ICT is tool of transparency & environment



Telemedicine



INNOVATION

- ❑ The e-Agriculture considered unique and innovative project because
- ❑ The project is the first Agriculture project in Sudan using ICT for community
- ❑ It is an open source project developed by many partners worldwide
- ❑ The uniqueness of projects gave GDCO the opportunity to be a supporting or media partners for 16 international conferences without paying a penny
- ❑ It is easy to access and easy to replicate or adopted
- ❑ The cost of the project managing staff (for 3 years) is zero (voluntary)

Conclusion

- ❑ It took more than three years to update and monitoring free or on voluntary bases (may 2006 to 25/09/2009)
- ❑ the cost of the software is 90% less than the commercial
- ❑ The data entered in 9 months from the files of GMAC since the 1960s
- ❑ all GMAC staff are well trained to manage the system
- ❑ the project is replicated in farmer union by the technical manager (GDCO Volunteer)
- ❑ the project adopted in Sinar, Eldamazin and North Kordfan mechanized agriculture and their staff was trained in Gedaref by GMAC team

e-Agriculture Future



- Agro-mobile and cloud computing services
- Telemedicine for rural area
- Link of the e-Map with satellite
- Portable Telecentres to provide integrated e-services

Telemedicine



المهندس احمد الماحي مدير التخطيط بالزراعة الالية
https://www.youtube.com/watch?v=b_pvF50LYv8&t=183s

Link e-Map to
sattelite

agro-mobile services

<http://easy123.org/sudan/>

<http://www.sunta-sudan.org/>

Portable Telecentres



Rakooba



Gottia

- ❑ Portable Telecentres are an integrated e-services tools
- ❑ It is social business module or SME that creates economic and social sustainable development specially in rural areas .
- ❑ Helps in moving services to rural areas
- ❑ Eradication of illiteracy resources
- ❑ Improves and speed the implementation of the SDGs
- ❑ Better quality of training with minim cost anywhere and at anytime

Challenge

- ❑ ICT was not part of the culture and not a priority (big digital divide)
- ❑ resistant to ICT change in senior staff
- ❑ Lack of coordination and big digital divide
- ❑ Financial support
- ❑ High cost of broadband and e-infrastructure
- ❑ Security risk and hackers
- ❑ Distances and geographical barriers in rural area
- ❑ Power supply

THANK YOU
Thanks to our Great Partners

4 more information

<http://www.gedaref.com/e-Agriculture.html>

<http://www.sunta-sudan.org/>

<http://easy123.org/sudan/>

<http://www.unite-it.eu/profiles/blogs/role-of-gdco-telecentres-in-e-agriculture>

<https://sustainabledevelopment.un.org/index.php?page=view&type=20036&menu=1561&nr=55389>

<https://www.youtube.com/user/Gedaref22sudan/videos>

<https://www.youtube.com/channel/UCu9ITzYGTC0hIMlcqoqODbg/videos>