

Rural Internet Propagation Enhancement (RIPE)

Bridging 'Digital Divide' in Extreme Rural Situation

*A Position Paper to
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By

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Executive Summary

The ghostly emergence of Information and Communication Technologies (ICT) has brought with it dramatic opportunity that agents of change could take advantage to leverage development in hitherto nebulous rural environment. ICT is welcome panacea in Nigeria, where successive regimes wage frantic war against social indiscipline that constrained positive development, yet with resultant hazy progress. In fact, ICT is a phenomenon in the country and there is urgent need of IT-based swift concerted development intervention by stakeholders. It is worth noting the quick diffusion of IT devices (mobile phone and satellite television) into rural areas despite traditional power interruption, absence of standard network antennas, poor handling, operation, and maintenance by users. There is also noticeable depleting of the meagre rural income through sale of recharge card. Unfortunately, the prepaid credit is mainly for exchange of trivial information or for leisurely conversation via the Mphone.

There is extensive use of mobile handset in both urban and rural areas; satellite television, Desktop, Internet, and Laptop computers follow in order of relevance. In major towns and cities, the mobile phone contributes to enhanced business transaction whereas in rural areas, Mphone potential for sustainable community development is still untapped.

Satellite television is lucrative commercial venture in 'viewing houses' in both urban and rural areas where they pull large crowd. Television viewing houses concentrate on showing international football games. Internet Café is sparsely restricted to urban areas only while Desktop and Laptop computer is still an issue of privilege in the country. Six IT companies pioneered GSM service in Nigeria followed just recently by another four. The services of these **ten** IT companies concentrate in major towns and cities. Seemingly, customers confront them with subscription and connectivity challenges for a growing need, implying the growing ICT business in Nigeria that confined to urban centres is just nearly as half the total demand since rural potential remain under explored with regard to local need.

Rural application

Community specifics such as traditional pre-occupation, computer re-orientation, mode of utilization, economic index, and proximity to active source of network are guide to Internet service deployment in rural Nigeria. Rural communities in northern Nigeria will benefit more from farmer-oriented Internet service deployment. Mobile phone and web technology will continue influencing community livelihood opportunity while response proffered by affected communities shall provide basis for evolving new technologies that fits with long-term need.

Background

Internal and external factors aggravate subsistence living condition of rural communities generally in Nigeria, with severe consequences among farming communities especially in the northern part of the country that contain almost 54 percent of the country's 120 millions populations (2006 census). Industrial and green revolutions, globalization and Information Technologies (IT) that over the years crystallized into today's 'digital divide' constitute external factors while illiteracy, poverty, poor governance, and poor income constitute internal factors.

Over 75% of the Nigerian population is engaged in agro-allied pre-occupations, two thirds of which are smallholder farmers that produce over 80% of local staple food that feed the country's population. Government agricultural policy at various levels target rural community with smallholder farmers' the central focus. Yet, use of wrong farm input, increasing post-harvest loss, widespread food shortage, and severe food price inflation are glaring consequences that exacerbate subsistence pressure on rural communities. Prevalent outcomes of these social and economic constraints are increasing rural community exposure to food insecurity, poor nutrition and health, abject poverty and increasing rural-urban migration.

Need assessment

Field experience gained from working with smallholder farmers in rural Kano State and northern Nigeria at large indicates rural Internet deployment is primarily needed to address core 'digital divide' issues that include:

- Commercial farm extension
- Input-output markets development
- Computer re-orientation

The computer re-orientation issue is most challenging to address going by communities' low western education status and zilch human computer interface (HCI) aptitude.

Local initiative

As mentioned earlier, mobile phones in rural Kano State mainly serve exchange of pleasantries only. There is ongoing marketing initiative by a local farmers company – ***Kura Agricultural Export Company Limited (KAEC)*** based in Kano River Project (KRP) with specific objective to optimize mobile phone and Internet deployment for domestic marketing of fresh vegetables and sourcing improved farm input. The company will operate six regional Internet portals across the country to interface with coordination office located in Kano while various farmers in production clusters in the different irrigation sectors of KRP regularly contacted via mobile handset. The target is to establish tenacious Internet market opportunity that is devoid of penetration by intermediaries. Expected tangible results are many, but few of them include direct increased income, reduced post-harvest loss, sourcing better inputs and non-stop production schedule for farm producers. Indirectly, food security options, better nutrition, and health and poverty reduction for the populations.

Frankly speaking, the current Internet service has no local value to rural farm producers in northern Nigeria for apparent reasons bordering on

- (a) Cost
- (b) Sophistication
- (c) Application
- (d) Content
- (e) Individuality
- (f) Accessibility

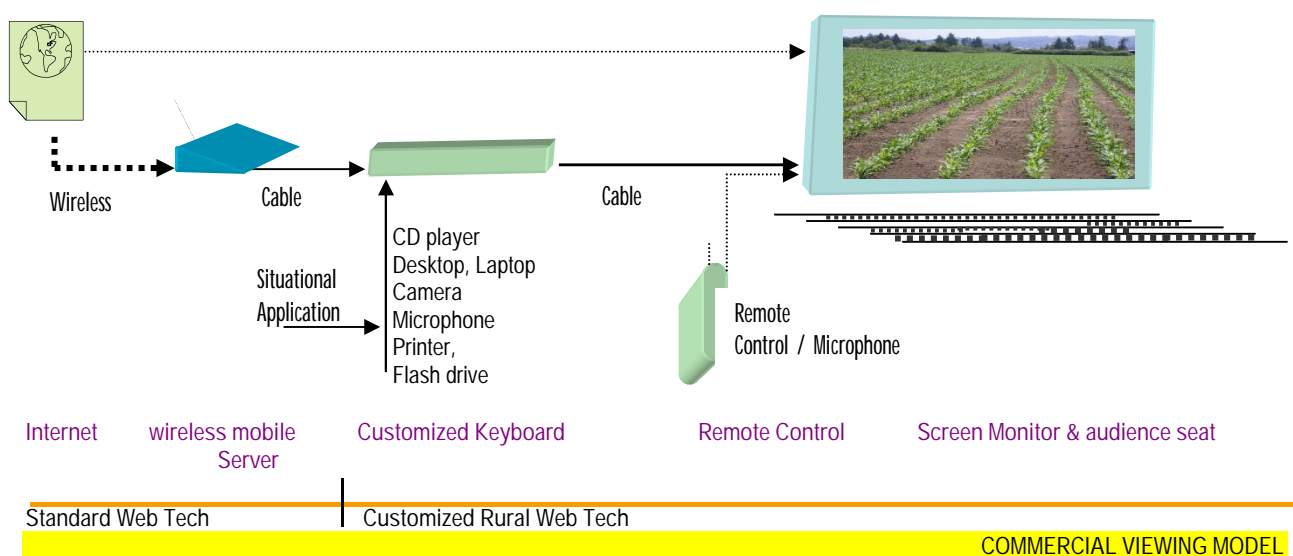
However, this does not mean the rural community do not need the Internet neither is it advocating creating 'second web' for rural audience. Rather, is about ***transmission*** and ***web content*** that is compatible with current web technology syntax and harmonizes above parameters.

Rural Internet Propagation Enhancement (RIPE)

Idea

The social characteristics of most rural communities in Nigeria are; large population concentrated in a given area, common pre-occupation, low functional western education, low economic index, zero computer literacy, abundant renewable natural resources (RNR), and poor amenities. Deployment of Internet-based programme of change is now possible. **RIPE System is a customized web transmission at rural community level for effective propagation of occupational/development web content (Picture Slides or Moving Images Only) to enhance utilizable Internet service outreach to large target audience at once.** The specific goal is to achieve affordable customized transmission technology, utilizable content and social change.

Fig. [a] **RIPE System Chart** (Diagram by Rabi Auwalu Yakasai)



Syntax

(a) **Wireless Mobile Server**, a standard modem for transmitting Internet signals that is available in the country's ICT market. It is most appropriate device for enhanced Internet deployment in rural areas.

(b) RIPE System Keyboard

This customized keyboard receives signals from the Internet and other detachable ICT devices for onward amplification to screen monitor. The main required features are:

- Bar display for typing webpage address only
- Conventional alphabet and number buttons
- Adapter ports for detachable external devices
- Portable, self cooling and night illumination
- Cable connection ports for wireless server and to screen monitor
- Other?

(c) RIPE System Remote Control

This is mobile hand control with buttons for control of screen monitor content. Main required features include:

- (a) Voice input-output to seated audience only
- (b) Wireless /cable connection to screen monitor
- (c) Other?

(d) RIPE System Screen Monitor

The monitor resembles modern electronic roadside Billboard. Main required features are:

- (a) Display for view by large rural audience
- (b) Display web and attached device contents
- (c) Small, medium and large size options:
 - Fixed location version (large screen) most suitable for commercial viewing centre (fig. a)
 - Mobile RIPE 'Under Tree Version' (UTV) (medium screen) most suitable for Rural market day viewers (fig. b)
 - Mobile RIPE maternity version (small screen) most suitable for viewing by women in maternity hospital (fig. c)
- (d) Colour display, stereo sound
- (e) Easy to assemble, dismantle and maintain
- (f) Flat, light weight and rugged
- (g) Other?

(e) RIPE System Viewing Centre (RVC)

An equivalent to existing 'Television Viewing House' the RVC is to exist independent to accommodate RIPE System devices. Main requirement include:

- (a) Standby Power Generating Set
- (b) Audience seats
- (c) Different operators/sponsors
 - Private enterprise
 - Local Government Authority
 - State Government
 - Federal Government
 - Civil Societies in collaboration with international development agencies
 - Learning Institutes
 - Any partnership of the above
- (d) Periodic schedule of web browsing very important to keep busy and moving with time

(f) RIPE System Web content

Target rural communities are illiterates. This makes *pictorial* web content appropriate medium for transmitting development intervention for rural assimilation. In Kano River Project, the specific goal of RIPE System is to stimulate smallholder agricultural commercialization, which is possible through dissemination of understandable IT-based occupational pictures. *Slide* and *video images* are favoured web content for the audience of RIPE System. Just imagine the effect of derivable benefit from having more than 90 percent local cooperative members view pictorials on quality control application to fresh vegetables; or watch management procedure of feeding and milking feedlot cattle in backyard system. Another vital example may be for ignorant rural people to watch pictorial web content on the scourge of HIV/AIDS pandemics, or better still watch the menace of desert encroachment, innovative computer

literacy training and many more. The potentials of pictorial web content in the RIPE System in addressing specific rural need are infinite. Pictorial web content targeted to audience of RIPE System may pose technical challenge and/or create business opportunity in new paradigm web content design (Power Point format, PDF, Video and other?)

Conclusion

Information and Communication Technologies (ICT) certainly holds significant promises for rural community livelihood improvement especially evolution of corporate governance that is sensitive to local specifics. In a governing system where social indiscipline, exploitation and formalized monopoly reigns, amid subsistence and classical business opportunities, a safety path for affected rural community is to unite and embrace the RIPE System to light the path.

Coming across W3C Mobile Web Initiative in addition to local initiative, the muted idea of RIPE System becomes more transparent as we condensed past experience to innovate new approaches based on need assessment. RIPE idea is a farmer participatory decision outcome guided by consultant.

It is worth noting that rural farming communities in northern Nigeria account for over 50 million people with vast human and material resource potentials for development. If ICT offers an opportunity to improve the livelihood of these populations through ICT-based creative ideas, scaling up the idea in Nigeria is equivalent to solving half of similar problem in the entire West African countries since Nigerian population is half of the 16-member Economic Countries of West Africa (ECOWAS) combined.

Attending the workshop is therefore significant to examine RIPE System with ICT experts and exchange and share experience towards full development of the idea. This forms the basis for requesting to participate with the aim to:

- (a) Contribute the RIPE System idea to stir discussions in the workshop
- (b) Contribute information about end usage, modes, and need assessment regarding ICT application by rural communities in Kano State Nigeria
- (c) Participate in brainstorming sessions in the search of roadmap towards ICT-based rural community development in sub-Sahara West Africa.
- (d) Harness the workshop resources for adoption in smallholder agribusiness to move our farmers' Company forward.
- (e) Explore the possibilities of collaboration partnership to develop the RIPE System in Kano with ICT and development stakeholders in the workshop

Fig. [b] **Under Tree Mobile RIPE**

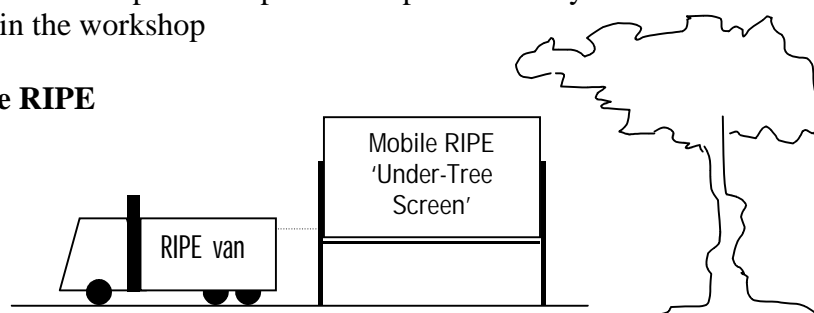


Fig. [c] **RIPE Maternity Version**

Drawings by: Rabi Auwalu Yakasai

