



ICT Applications for Rural Development: Examples, Enablers, Success Factors

EAP Rural ICT Review

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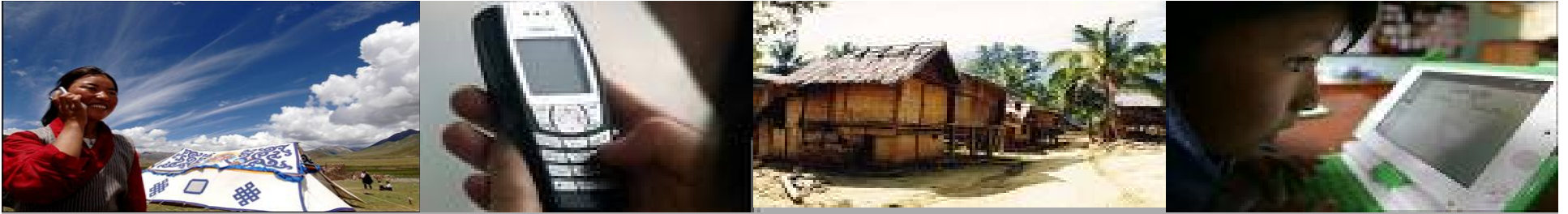
EAP Review of Rural ICT

- Recent stocktaking indicated that ICT components in EAP operations are rarely informed by sectoral/regional experience
- Usually isolated from sector work that underpins most Bank development practice - resulting in technology-driven design, complexity, and high failure rates.
- Another key obstacle is insufficient capacity among Bank staff, including access to technical support,
- Regional ESW - focus countries - Indonesia, Lao PDR, Vietnam, Philippines



Key Questions

- How well connected are rural populations, and what policy changes are needed to improve rural connectivity?
- How can high-value information applications be mobilized and scaled-up to improve rural productivity, livelihoods and living standards ?
- How much capacity building is required for rural areas to create a society of producers of local knowledge and of users of that knowledge?
- How can government efforts to promote rural development – in various forms – and to develop rural infrastructure be more closely integrated, conceptually, institutionally and in practice?



Infrastructure & Applications - Challenges

- Affordable access to communications infrastructure: telephony and data services
 - Rapid ongoing rollout in mobile telephone networks and increase in mobile teledensity. Mobile phone industry targeting “next 3 billion” or “bottom of pyramid” in developing countries. But many rural and remote areas still excluded.
 - Internet access lagging in urban and rural areas including in many lower-middle income countries (Indonesia, Philippines)
 - **Broadband access** particularly limited in many EAP countries
- Availability and relevance of information services: content, applications.
 - Understanding and satisfying existing information demand
 - Stimulating new demand, including for multi-media content
 - Capacity-building for users; digital literacy



Rural ICT "applications

- Study focuses on three applications:
 - (i) Mobile phone-enabled banking (m-commerce) targeting rural areas and low-income populations
 - (ii) Producer price information/advisory services (SMS/internet):
 - (iii) Land Information Systems



Applications: M-Banking

- Transfer of credit (airtime) via mobile phone/SMS
- Deposits, savings, loans, payroll, remittance payments, purchases (in participating retail outlets), bill payments
- Philippines – global leader (along with S. Africa's Wizzit, Kenya, others)
- Globe Telecom - GCash as a microfinance service delivery platform being piloted (texting payments, deposits)
- Seeing precursor m-commerce services in Lao PDR – Millicom Intl. (more competition than in Vietnam); Indonesia – T-cash (introduced Nov. 2007)
- Partnership between mobile operator, financial institution; financial regulator



M-Banking: potential benefits

- To consumers:
 - Reduces travel time and costs (to travel to Bank branch). In Papua New Guinea, teachers may travel 2-3 days by rough road or boat to withdraw salaries
 - Reduced transaction costs for remittances (1% cash-out for G-cash in the Philippines, compared to higher rates from Western Union)
 - Reduced opportunities for fraud, counterfeit and theft by providing a secure electronic mode for transferring funds (as opposed to, for example, travelling long distances to transfer cash);
- To service providers:
 - Reduced direct costs for delivering savings and credit products;
 - Reduced errors and increased transparency in the transfer and recording of loan disbursements and payments and savings deposits;
 - Easier record keeping on each client through computerization of transactions through mobile phones, thus making it easier for financial institutions to tailor products and services for segments within their large pool of small customers.



M-Banking: Key Enablers

- Telecom infrastructure (mobile): reliable, affordable, extensive penetration in rural areas, and good network quality
 - Linked to overall telecoms market environment (competition, effective regulation)
- Technology: bandwidth, security issues
- Literacy (“SMS culture”)
- Business case for expanding m-commerce
- Financial sector regulation: consumer protection, risk management, anti money-laundering



Market Price Information

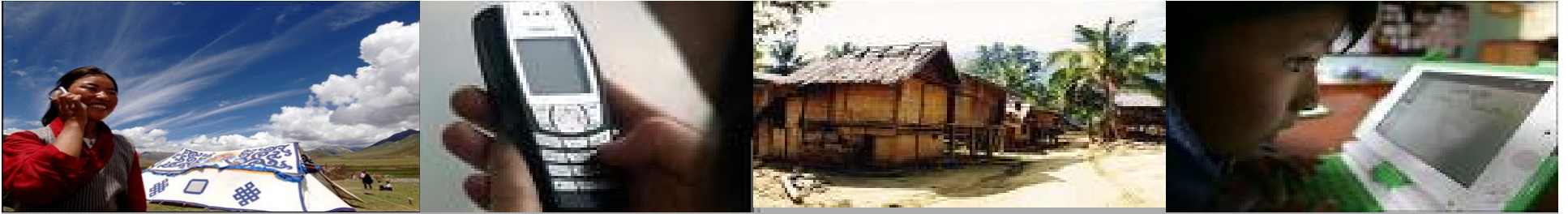
- Formal or informal transmission of price and other information between markets and producers
- Production and dissemination of market intelligence
- Can be top-down (govt, private sector) or bottom-up (private sector, individual)
- Reduces price instability and intermediation costs for producers
- Expands market opportunities



Examples—Market Information 1



- Manobi (Senegal).
Producer price information via SMS.
Recently also emergency rescue capability (using GPS).
- Other examples – Sri Lanka (Govi Gnana - Govt) India (e-choupal-pvt. sector)



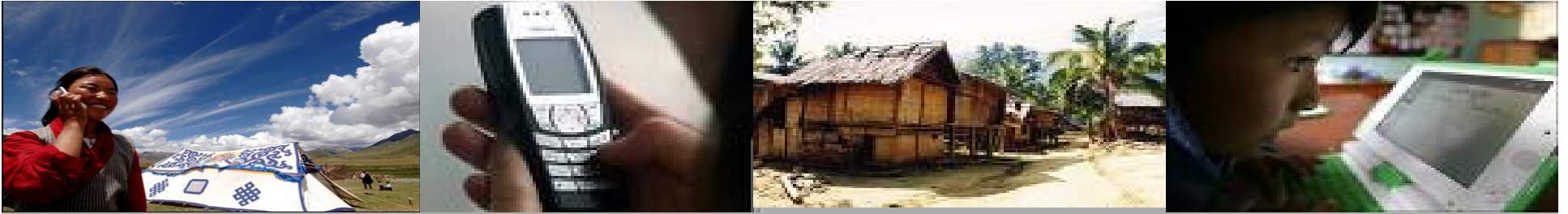
EAP Market Information Systems

- Indonesia's **Farmers' empowerment through agricultural technology and information (FEATI) project** is an example that combines support to the country's extension service with the delivery, via the Internet and mobile phones, of market intelligence and technical services, and is expected to foster greater interaction between extension agents, researchers, farmers and traders.
- Lao P.D.R and Vietnam have implemented a few initiatives, mainly through donor-driven projects, notably the Sustainable Development of Peri-urban Agriculture in SouthEast Asia Project (SUSPER; www.avrdc.org/susper).



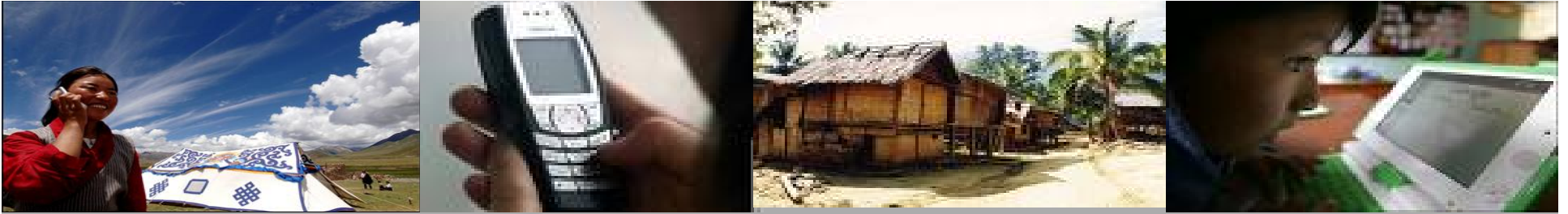
EAP Market Information Systems - II

- **Philippines - B2BPriceNow.com** seeks to expand market opportunities for farmers and rural residents by increasing their access to ICTs and to new market channels. NGO-initiated, now for-profit
- Key partners - UNISYS (technology) - providing a free e-commerce entry to Filipino farmers; PRRM – helping train farmers, Polytech. Univ. (PUP) – training trainers; Govt. owned Land Bank - extensive network of 3,600 cooperatives and over 5,000 small and medium enterprises. Also provides interest free loans to cooperatives to help fund B2B center establishment
- The company's strategy is to build up a loyal customer base of farmers by demonstrating the power of ICTs for e-commerce, training cooperative members in the use of ICTs and simultaneously providing services through its online market place and via sms. Other services – fax, xerox, sale of cellphones etc.
- By March 2007 twenty four B2B Centers had been established under the company's franchise. Target Center operators are primarily the 941 financially sound cooperatives



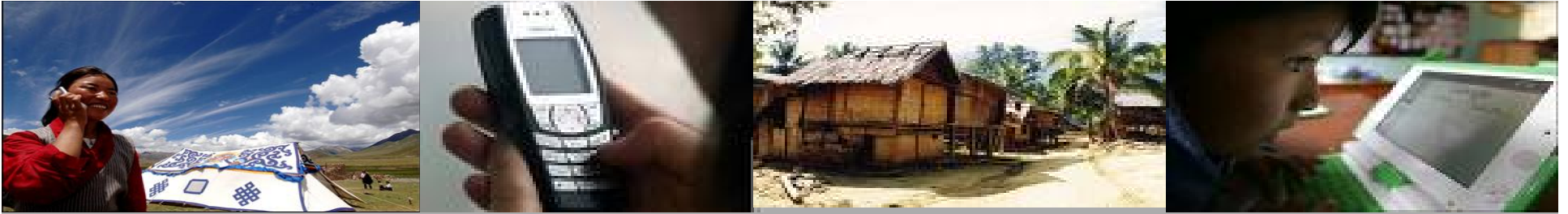
Market Price Information: Key Enablers

- Affordable, reliable telecoms infrastructure:
 - Mobile telephony
 - Internet (via PC or mobile/GPRS, 3G)
- Content management: information quality, relevance, timely updates
- HR: capacity to deliver services



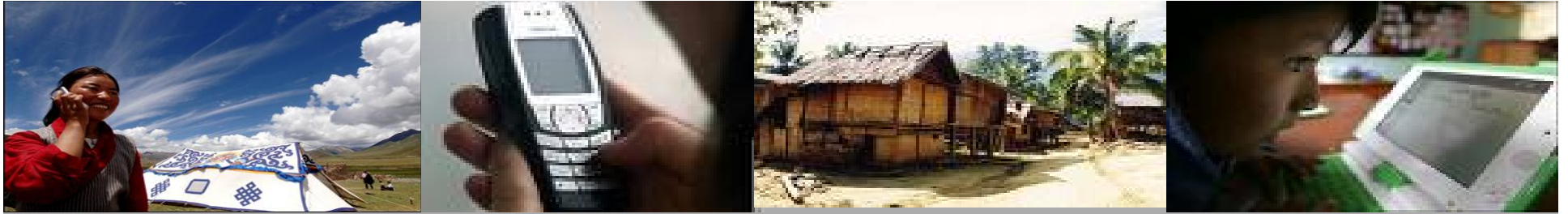
III. Land Information Systems

- Cadastral information
- Land use planning, GIS
- Environmental management
- Tax collection
- Disaster management
- Property registration
- ICTs - reduce costs of data acquisition, time taken to complete transactions, and contributing to standardization of system design; allow land-agencies to achieve higher work efficiency, improve the quality of public service, improve transparency and governance, and to enlarge access to formal financial resources by facilitating land titling



Examples: Land Information Systems

- EAP – WB involved in long-term land management/land titling projects
- Indonesia – LMPDP; RALAS (Aceh);
- Vietnam: VLAP (under prep.) Bac Ninh LIS
- Philippines: LAMP, LTCP

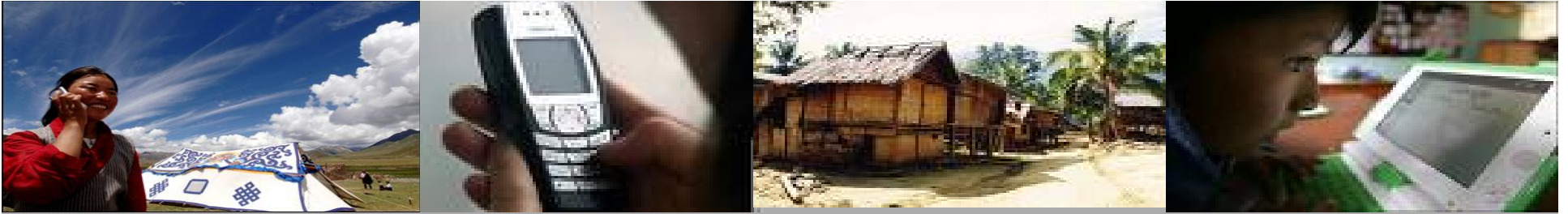


LARASITA – Indonesia – pioneering “mobile” land information services; INTAN – SMS-based land services

Picture 1
LARASITA Van and BPN Service Counter



Source: BPN Karanganyar archive



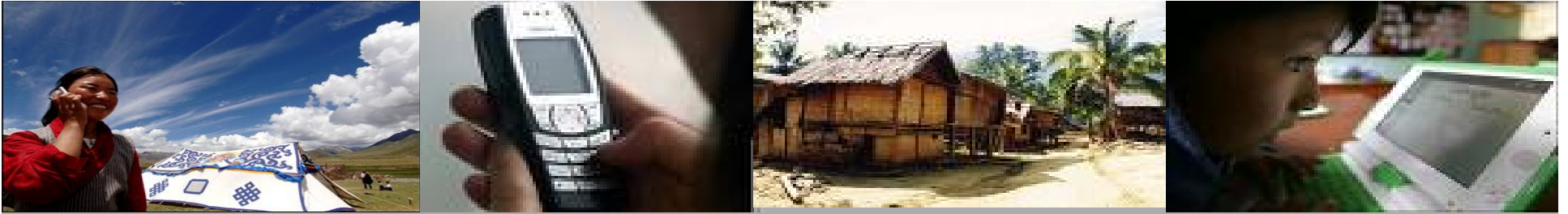
Land Information: Key Enablers

- Institutional and legal reforms: must be tackled upfront – business process changes, incentives
- Infrastructure: affordable, reliable, access to Internet
 - Rural broadband
- Institutional coordination (registration, land valuation, mapping, taxation)



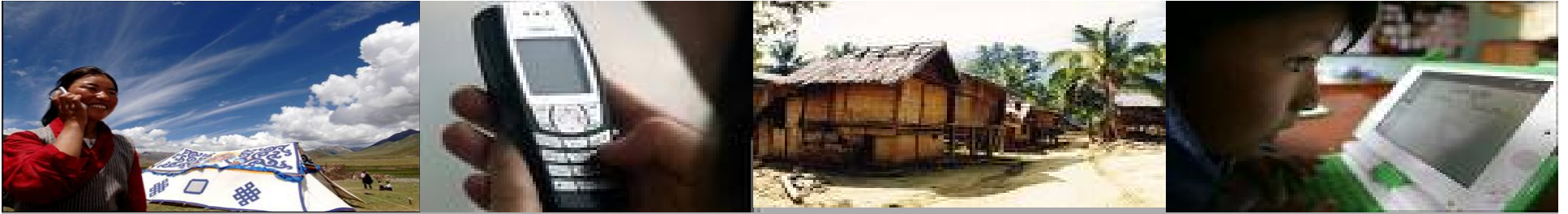
Rural ICT Applications: CSFs

- Low-cost, reliable communications *infrastructure*, available in rural areas:
 - Mobile phone networks
 - Broadband
 - Private investment
- Supportive and effective *legal/regulatory framework*
 - Competitive telecoms markets
 - Effective regulation: consumer protection, tariffs, spectrum, interconnection
 - Universal Service/Access policies (stimulating rural access)
- *ICT skills*:
 - information systems management, content development, training at village level (users, operators)
- Broader institutional development



Mobile telephony: worldwide success story

- Over 2.5 billion subscribers today, and heading to the 3 billion mark.
- “network coverage” is a diminishing problem, except in very remote and sparsely-populated areas
- “Uneconomic” areas are becoming more attractive to the telecoms industry
- Lower cost handsets are becoming available (provided not excessively taxed): US\$15-20 and falling



Promoting Rural ICT: Roles of Key Players

- Governments: Policies and programs to facilitate access to telecommunications in rural areas
 - e.g. universal service policies
 - Universal service funds
 - Broadband
- Private Sector: investment
- Private-public partnerships: for service provision



How can the private sector contribute?

- Investment in ICT infrastructure, operation and maintenance of facilities,
- Offering or developing multi-media content
- Benefits at different levels
 - communication service provider: revenues from Internet, telephone (fixed, mobile) access
 - content providers
 - local entrepreneurs



How can governments help?

- Avoid direct financing; focus on “enabling environment”
- Policies and regulations supporting more widespread and competitive *broadband access*, e.g.
 - Spectrum: 3G in 850 or 900 MHz facilitates rollout of 3G mobile (i.e mobile broadband) in rural areas
 - Issuance of WiMax licenses
 - Medium-term transition to Universal Access (and Service Licensing), allowing telecom operators, ISPs to provide variety of services. Facilities-based competition
- Availability of cheap broadband connection=critical success factor
- Other factors: tax policies, access to land, property



What can the World Bank do?

- Promote better coordination of ICT infrastructure and applications development internally and at the country level
 - Knowledge-sharing – surveys; M&E
 - Joint program development
 - Potential examples of collaboration?
 - ✓ China
 - ✓ Vietnam
 - ✓ Papua New Guinea
 - ✓ Indonesia
 - ✓ Philippines
 - ✓ Cambodia