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FAO STRATEGIC FRAMEWORK FOR BRIDGING THE RURAL DIGITAL DIVIDE

I. Summary

1. Many agree that knowledge is central to development, and that there are considerable resources of knowledge and information that could be made available to assist poor people deal more effectively with the root causes of their poverty. The new information and communications technologies (ICT), and increased priority and resources for information exchange, have the potential to improve the access to and benefits from this accumulated knowledge for the rural poor, as well as creating a more informed policy environment. However, a “digital divide” separates those most in need from the world’s information and knowledge resources. The **“Programme for Bridging the Rural Digital Divide to reduce Food Insecurity and Poverty”** makes the case for a new strategic Programme through which FAO will facilitate a global partnership to address the **rural digital divide**. The Programme will strengthen human and institutional capacities to harness information and knowledge more effectively for agricultural and rural development. This proposal responds to a real gap, not yet addressed in a cohesive way by the international development community. The rural digital divide is not only concerned with infrastructure and connectivity, but rather is a multi-faceted problem of ineffective knowledge exchange and management of content, lack of human resources and institutional capacity, compounded, obviously by an acute scarcity of financial resources.

II. Background Information

2. Knowledge is central to development, and there are considerable resources of knowledge and information that could be more effectively exchanged in support of poor people struggling to deal with the root causes of their poverty. The new information and communications technologies (ICT), and increased priority and resources for information exchange, are already improving access to and benefits from this accumulated knowledge for those with the means, as well as creating a more informed global policy environment. However, an information gap or “digital divide” separates those most in need, particularly the majority of the poor and hungry who live in rural areas and the institutions who serve them, from the world’s information and knowledge resources. These people are being left out of global prosperity, and the gap is widening.

3. FAO has taken the initiative to develop a new strategic Programme for “**Bridging the Rural Digital Divide**” to reduce food insecurity and poverty, through which the Organization will coordinate an international partnership to address this important development issue. The Programme will strengthen human and institutional capacities to harness information and knowledge more effectively for agricultural and rural development. This proposal responds to a real gap, not yet addressed in a cohesive way by the international development community. The rural digital divide is not only concerned with improving infrastructure and connectivity, but rather is a multi-faceted problem of ineffective knowledge exchange and management of content, lack of human resources and institutional capacity, compounded, obviously by an acute scarcity of financial resources.

4. Understandably, there are many definitions of the term “digital divide”. By FAO’s definition¹, the term refers to “inequitable access to ICT both between wealthy and poor countries, and within all countries, between relatively privileged and underprivileged social groups.” A broader concept of the digital divide is espoused in the proposed scope for this Programme, which seeks to address several factors in the relationship between lack of appropriate information and economic deprivation and does not focus exclusively on the technologies themselves.

5. Like many communication technologies before it, the Internet enables rural communities to receive information and assistance from outside development organizations. However, unlike other communication media, the Internet is the first medium that allows every user to be a sender, receiver, narrowcaster and broadcaster. As such, the Internet offers opportunities for two-way and horizontal communication and for opening up new, non-traditional communication channels for rural communities and development organizations. Most importantly, it can support bottom-up articulation of development needs and perceptions.²

6. The growth of these new technologies has indeed exacerbated the already extreme differences between rich and poor countries (Table 1), and between rich and poor men and women in poorer countries. The digital divide is more alarming in the context of rural communities, which face further marginalization and widening information gaps as compared to communities in urban or periurban areas. From a technology standpoint, the weak link of the so-called “first mile” of connectivity for rural communities and households has been identified by FAO³ as a major barrier to adoption and assimilation of ICT. Also, unless due attention is given to gender when considering the opportunities and risks, these new technologies they could very well exacerbate existing inequalities. These points underline the necessity for a specific approach as proposed here to address the **rural digital divide**.

¹ Sustainable Development Department

² Knowledge and Information for Food Security: The Role of Telecenters. L. V. Crowder. 1998. Seminar on Multipurpose Community Telecenters, Budapest.

³ The first mile of connectivity. D. Richardson & L. Paisley (eds.). 1998. FAO.

Table 1: ICT Indicators in Selected Countries-2001

	Internet Users	PCs	Fixed telephone lines	Mobile phones		Internet Users	PCs	Fixed telephone lines	Mobile phones
For every 100 inhabitants					For every 100 inhabitants				
Latin America					Asia & the Pacific				
Brazil	4,6	6,3	21,7	16,7	China	2,6	1,9	13,8	11,2
Guatemala	2,0	1,7	6,5	9,7	Korean Rep.	51,1	25,1	47,6	60,8
Colombia	2,7	4,2	17,1	7,4	Indonesia	1,9	1,1	3,7	2,5
México	3,5	6,9	13,5	20,1	India	0,1	0,6	3,4	0,6
Venezuela	5,3	5,3	11,2	26,4	Bangladesh	0,0	0,2	0,4	0,4
Costa Rica	9,3	17,0	23,0	7,6	Sub-Saharan Africa				
Nicaragua	1,0	1,0	3,1	3,0	South Africa	7,0	6,9	11,4	21,0
Peru	11,5	4,8	7,8	5,9	Kenya	1,6	0,6	1,0	1,6
Bolivia	1,4	2,0	6,0	8,7	Nigeria	0,0	0,7	0,4	0,3
Caribbean					Senegal	0,1	1,9	2,5	4,0
Rep. Dom.	2,1	N/A	10,8	12,4	Ghana	0,2	0,3	1,2	0,9
Jamaica	3,8	5,0	19,7	26,9	North Africa and the Middle East				
Eastern Europe					Egypt	0,9	1,6	10,3	4,3
Estonia	30,0	17,5	35,2	45,5	Morocco	1,3	1,3	3,9	15,7
Hungary	14,8	10,0	37,4	49,8	Jordan	4,1	3,3	12,7	14,4
Czech Rep	13,6	12,1	37,4	65,9	Algiers	0,0	0,7	6,0	0,3
Sample OECD									
UK	40,0	36,6	57,8	78,3	Spain	18,3	16,8	43,1	65,5
US	49,9	62,3	52,0	44,4	Italy	27,6	19,5	47,1	83,9
Australia	37,2	51,7	66,5	57,8	Germany	36,4	33,6	63,5	68,3
France	26,4	33,7	57,4	60,5	Finland	43,0	42,4	54,8	77,8
Canada	43,5	39,0	65,6	32,0	Japan	45,5	34,9	59,7	57,2

Source: ITU indicators, 2001. [<http://www.itu.int/ITU-D/TIC/statistics>]

III. Rationale and Approach

7. This Programme is being proposed based on the premise that the digital divide is not just a problem of access to technology and its performance (speed/quality of connection), but that it is also a problem of effective knowledge exchange and use of content. The international community including FAO recognizes the “*Rural Digital Divide*” as a complex challenge. Between countries and between different groups of people within countries, there is a wide disparity between those who have genuine access to ICT and are using it effectively, and those who do not. Rural institutions and individuals in many developing countries are increasingly able to access modern ICT, albeit often with high cost and poor performance. Nonetheless, it is clear that many countries, especially in Latin America and the Caribbean, face tough challenges to extend connectivity into rural areas. However, they are facing many barriers such as having to learn how to use the various media effectively and how to find or disseminate relevant content effectively.

8. In summary then, the rationale for this Programme is that the rural digital divide is not only concerned with technology infrastructure and connectivity, but rather is a multi-faceted problem of ineffective knowledge exchange and management of information content, as well as the lack of human resources, institutional capacity, and gender sensitivity. Even though the goal of bridging the rural divide transcends the technologies, the means to that end are coupled to the ICT. The drawback is that too many proposed solutions are driven not by empirical evidence from studies of how people use the technologies, but by ICT developers and providers who are usually a great distance from the locales and contexts in which their tools are to be used. Bridging the rural digital divide requires an understanding of how persons in different cultures learn to use and apply ICT, access to which is central to breaking down the divide. Indeed, uncritical acceptance of technology places a significant burden of learning, use, and access onto the users. Many will remain marginalized and viewed as “problems” due to linguistic barriers, gender, disability and literacy, or because they live in oral cultures. The question is how to make technology serve the needs of those persons. The rural digital divide will persist longer if users are unable to grapple with the problems of uptake and effective knowledge exchange. A crucial agent of change developed through this Programme will be the mobilization and harnessing of previously inaccessible knowledge and information in digital form, derived from or adapted to the local context. Innovative participatory approaches to knowledge exchange will be implemented by the Programme in several countries, and will provide access to appropriate content. These approaches have to build on past experiences while also being innovatory, and will aim to prove the case and learn lessons from implementation in a wide range of environments, using a mix of media based on traditional and new technologies. This Programme is a reflection of FAO’s continued commitment to ensuring wider access to knowledge and information in support of food security and the eradication of poverty.

The Stakeholders in Bridging the Rural Digital Divide

9. Three broadly defined groups of Programme stakeholders within Member States have been envisaged. These are as follows:

- i. **Rural communities and households** - need to exchange and exploit information and knowledge more effectively using ICT to improve livelihoods and reduce vulnerability, which requires a mixture of awareness-raising and capacity building based on a strongly people-focused and participatory approach. The interests of rural households extend into many sectors, and agriculturally-related information and communication will take its place in the general schema.
- ii. **Rural service providers in the public and private sectors providing agricultural, financial, and communications⁴ services** - need to enhance their use of digital information resources and knowledge systems as well as the new ICT themselves, which requires training and skills acquisition, and new mechanisms for interaction such as e-commerce and electronic communities of practice etc. Organizations and services at sub-national and local levels have to focus on addressing the broad range of livelihood opportunities of poor people, which can be achieved only by improving transparency and information exchange amongst the various players involved in rural development, by catering to the needs of all the people who they serve.
- iii. **Policy-makers and their advisers** – need an enabling information and communication policy environment, including better and more reliable poverty monitoring indicators provided in a relevant and timely manner, for accurate assessments and development of pro-poor government policy, such as Poverty Reduction and Food Security Strategies.

⁴ Rural communication networks, community radio broadcasters, and community telecentres.

10. The Programme will also depend on the intellectual and physical resources of the regional and international members of the development community, as well as those elements of the private sector involved with addressing food security and the information society. Many public and private organizations and individuals will be involved in the Programme, from financing institutions through to providers of technologies, technical information content and services. Two key success indicators for the Programme will be the effective mobilization in digital form of global public goods related to rural development and food security, and the development of effective partnerships between public and private sectors to add value to that information in the local context.

IV. Recognizing the Challenges

11. FAO has identified the following critical issues for improving the impact of information and communication, particularly for poor people in rural areas, which will guide the Programme:

- i. Locally-adapted content and context – how to ensure that useful information is repackaged and mobilized in the right format, so that it meets the different information needs and preferences of a variety of groups, so that it can be stored, retrieved, and exchanged with ease, and taking into account issues of ownership and copyright.
- ii. Building on existing systems – how to capitalize on, rather than replace and lose the value of existing indigenous, and therefore highly trusted, information and communication systems.
- iii. Building capacity – how to strengthen capacity of institutions and people involved in information provision to provide the right information in the right formats, as well as building the capacities of the information users to access and appropriate a wider range of information and ICT.
- iv. Access, empowerment and democratization – how to ensure that relevant information actually reaches and empowers poor people, especially women, and is not captured by wealthier or more powerful sections of the community.
- v. Strengthening partnerships – how to build the new horizontal and vertical inter-organizational, inter-departmental and inter-sectoral partnerships that are necessary to ensure information is available to all stakeholders.
- vi. Realistic approaches to technologies to support information and communication – how to build sustainable systems that enhance existing systems, are expandable and extendable, and exploit multiple and diverse communication tools and the full range of existing media.
- vii. Information costs, value and financial sustainability – how to value and finance the establishment of appropriate information infrastructure and the provision of appropriate information content, particularly in remote rural areas.

V. Interventions to address the “rural digital divide”

12. A wide variety of strategies and activities will be formulated and implemented, ranging from new public policies, infrastructure development, through to community-based, user-focused projects. The novel and innovative elements of this Programme are firstly the emphasis on the rural environment, and secondly the focus on information itself and mechanisms for accessing and exchanging it, in addition to ICT and infrastructure. In implementing this Programme, a case-specific approach will be adopted to design and develop feasible, results-oriented interventions that are nationally or locally led, but which will be aimed at learning lessons for the wider benefit

of others. However, the application of some basic common standards will ensure that experiences can be exchanged.

13. The following broad domains of intervention are proposed:

a) Content mobilization - enabling all FAO Members to mobilize, access and use the vast resources of information and knowledge in agriculture, forestry, fisheries and related fields, that are available in countries and the international community including FAO.

- i. development of operational frameworks comprising, guidelines, methodologies and tools, to assist countries and communities to mobilize agricultural and other rural information in digital form, including digitization, re-packaging, and dissemination;
- ii. enhancement of mechanisms for sharing digital information between countries and amongst the sub-national groups of stakeholders;
- iii. improvements to the structure, format, and style of FAO's own information resources, such as FAOSTAT and GIEWS⁵, for increased usefulness for Members, and development of efficient mechanisms to derive their feedback.

b) Capacity-building, human and institutional resources development - focusing on improving access to and the application of ICT in agricultural and rural development.

- i. development of training materials and programmes to support capacity building and human resources development in agricultural information management and rural communication systems for exchanging knowledge and information;
- ii. development and validation of approaches to strengthening institutions to make effective use of ICT in combination with other media, and especially in adaptation and appropriation of locally-relevant solutions, in support of agricultural and rural development;
- iii. assistance to development of e-learning in support of knowledge exchange between institutions, organizations, and individuals active in agricultural and rural development;
- iv. strengthening of partnerships between agricultural training establishments in developing and developed countries for curriculum development in the area of information exchange and communication.

c) Improving the effectiveness of FAO's own operational programme in the field - integrating information and communication processes within FAO's national and regional food insecurity and poverty reduction programmes, such as the Special Programme for Food Security, in Farmer Field Schools and in other interventions that directly involve poor rural people as the primary beneficiaries.

- i. assistance in the appropriate use of ICT for information exchange and communication between and within agricultural service providers (governmental, NGO and private sector), networks of farmers groups, and policy makers;
- ii. assistance with development of options for the provision of information services, including tailoring information for specific users (e.g. women and marginalized groups) and for a variety of agricultural sectors and markets;
- iii. development and introduction of tools and methodologies to allow researchers and extension services to undertake simulations of production systems under a variety of conditions.

⁵ Global Information and Early Warning System

VI. Proposed Programme

Programme Goal

14. To assist Low-Income Food Deficit Countries (LIFDCs) to bridge the rural digital divide in support of improved food security and reduced poverty through the effective use of knowledge and information.

Programme Outputs

15. The Programme will primarily focus on three key outputs - cornerstones of the strategic role of information and communication in reducing hunger and fighting poverty. These are:

- i. information content in digital format relevant to agricultural and rural development and food security developed, mobilized and exchanged by governments, rural service providers, and communities. Relative to this output, the fundamental framework of principles for mobilizing the global knowledge base in digital form will be developed to ensure accessibility and retrievability. These principles will be based on the WAICENT framework.
- ii. innovative **mechanisms and processes** for information exchange among rural policy makers, service providers, communities, and households developed and strengthened. Normative guidelines and tools for information and communication will be formulated, tested and disseminated to address the range of demands and capabilities of different rural stakeholders, based on active partnerships and collaborative lesson learning.
- iii. networks for exchange of these new mechanisms and processes among key stakeholders empowered. Information exchange and communication amongst formal and informal associations of stakeholders will be made more effective by the application of normative tools and processes.

Programme Activities

16. The Programme will comprise a series of interrelated national, regional and international interventions. It is envisaged that the Programme will be developed in phases, with the first phase due to last four years and provide a learning platform for a wider scale approach in the second phase. Activities will be initiated in a measured sequence over the first two years so that programme management resources are not overstretched. The approach and outputs will be especially carefully monitored and evaluated during the first phase.

National Components

17. This element of the Programme will comprise a series of national and sub-national interventions. Countries will be selected based on a set of objective criteria through a consultative process involving partners in the Programme. These national components may also involve inputs from international partners to facilitate project implementation. Wherever possible, activities in this element of the Programme activities will be developed in close coordination with existing projects and initiatives of FAO and other organizations working in food security and agricultural development. Strong linkage to existing operational infrastructures will be a key factor in achieving the Programme outputs effectively, leading to enhancement of institutions and processes with complementary information and communication components. The national and local sustainability of the Programme's interventions will be crucial to the successful achievement of the goal, and careful consideration will be given to revenue generation at local level to attract and retain the interest of entrepreneurs in a way that complements the governmental resources that are channelled into mobilization of public goods.

18. Interventions under the national component will be formulated in relation to the five priority areas identified in the Anti-Hunger Programme, drawing on FAO's wealth of experience in its field programme. Some illustrative examples are provided below.

- i. Strengthening capacity for knowledge generation and dissemination: e.g. support to rural information and communication networks in Bolivia, Ecuador, El Salvador, Honduras, Peru, and Nicaragua examining the relative roles and responsibilities of individuals and organizations within the communities, public and private sector research and extension organizations, and other rural service providers can exchange information on agricultural technologies, indigenous knowledge, and community demands;
- ii. Improvements in agricultural production in poor rural communities: e.g. strengthening of information and communication networks in support of conservation and sustainable use of plant genetic resources, including through biotechnology, in Latin American and Caribbean countries;
- iii. Developing and conserving natural resources: e.g. development of information systems in support of land and water resources management and planning in Chile, Argentina, Bolivia, Uruguay, Paraguay, Peru and Mexico; strengthening of institutional capacity and commitment in the region to provide current, accurate and widely available information on the forestry sector of 12 tropical countries in South America;
- iv. Expanding rural services and market access: e.g. development of crop yield and market information systems, which can support market-oriented systems to improve competitiveness of agrifood-chains in Colombia; development of information services to support agri-business network in El Salvador;
- v. Ensuring access to food for the most needy: e.g. strengthening of food security information systems through which improved methodologies and tools can enhance the identification and targeting of the hungry, the poor, and the vulnerable in the Caribbean and in Nicaragua.

Regional Component

19. This component of the Programme will aim to strengthen information exchange and communication using ICT amongst existing regional economic groupings and networks for improved cooperation in policy development and institutional capacity building in information management and communication. Areas of intervention will be determined in consultation with Programme partners, and the five priority themes of the Anti-Hunger Programme will form the framework for the regional interventions, as with the national component. FAO is involved in a wide range of activities in this area, which can provide case studies and act as pilots. Wherever possible, the regional interventions will also be designed to fit within the scope of, and add value to, the Regional Food Security Frameworks being developed by FAO and its Members, as well as existing thematic networks in particular subject areas. Interventions have been or are being developed in collaboration with appropriate regional or sub-regional organizations, such as IICA⁶, CARDI⁷, and INFOPECSA⁸, which will enhance the effectiveness of this component, increase the probability of sustainability, and the replication and expansion of successful outcomes.

Organization and Management

20. FAO would lead an initiative on bridging the rural digital divide, based on the emphasis in the Plan of Action of the World Food Summit (WFS) on the critical role of information as one of the priority areas in achieving food security. The Organization's Strategic Framework focuses on a commitment to "improving decision-making through the provision of

⁶ Interamerican Institute for Cooperation on Agriculture

⁷ Caribbean Agricultural Research and Development Institute

⁸ Centro para los Servicios de Información y Asesoramiento sobre la Comercialización de los Productos Pesqueros en América Latina y el Caribe

information and assessments and fostering of knowledge management for food and agriculture” (Strategy Element E). FAO’s specialization on agricultural and rural issues related to the digital divide would mean that partnerships would need to be further developed with the cross-sectoral development agencies such as the ITU⁹, UNDP¹⁰, UNESCO¹¹, the European Commission, and the World Bank. In addition, FAO has also taken the lead in bringing attention to these important issues through the Consultation on Agricultural Information Management (COAIM), which is an intergovernmental dialogue on policy issues related to agricultural information and communication. FAO also holds expert consultations on many aspects of information and communication to develop and agree on technical guidelines, norms and methodologies that can be adopted by FAO’s Members.

21. The greatest need for an integrated approach will be at the national level, where the human resources and institutions involved must work together both for capacity building and in follow-up policy development and implementation. At the same time, the international institutions and mechanisms used to coordinate and support the initiative will mobilize technical capacity to design and implement the components, carry out monitoring and evaluation of the results, and formulate follow-up actions building on the lessons learned and addressing emerging needs.

Resource Mobilization

22. Information and communication are a relatively new line of activity for many IFIs, and involvements are changing rapidly. Many bilateral aid agencies from OECD countries¹² have significant commitments in this area. Multilateral agencies¹³ have been supporting investment projects with information/communication components for many years, and the private sector has also become involved through charitable trusts and foundations as well as direct investment. It is also clear through policy statements through IFIs and bilateral that the amount of development assistance that will be available to developing countries for ICT-related work is set to increase markedly in the short term.

23. FAO’s strategy for mobilizing resources for Bridging the Rural Digital Divide will have two elements that are consistent with the Organization’s overall approach to its work. FAO will (a) provide certain resources from its Regular Programme, which will include allocation of some funding through the Technical Cooperation Programme to assist a few countries to initiate pilot projects on a small scale, and (b) mobilize unilateral and bilateral trust funds to use the experience gained from pilot projects to leverage additional resources for the expansion of activities to address the constraints to the rural digital divide on a wider scale.

⁹ International Telecommunication Union

¹⁰ United Nations Development Programme

¹¹ United Nations Educational, Scientific and Cultural Organization

¹² such as United States Agency for International Development, Canadian International Development Agency, United Kingdom Department for International Development

¹³ such as World Bank, Asian Development Bank, and the International Fund for Agricultural Development