

Chapter 5

Telemedicine, the European Space Agency, and the Support to the African Population for Infectious Disease Problems: Potentiality and Perspectives for Asia Countries and China

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ABSTRACT

Telemedicine and the broader field of eHealth as the application of Information and Communication Technology in the health sector offer opportunities for improving health world-wide. The European Space Agency (ESA) is, since 1996, active in this field and has initiated various projects which have demonstrated that satellite communications is a powerful technology for enlarging the reach of Telemedicine services toward geographically isolated regions, especially those with a high burden of diseases, such as many areas in Sub-Saharan Africa. In 2006 the Telemedicine Task Force (TTF) with the mandate to explore the potential of Telemedicine via Satellite for this region has been established on initiative of ESA and the European Commission, with representatives of African stakeholders and the World Health Organization (WHO). After a review of the current situation, the TTF has recommended short-term pilot projects to demonstrate the feasibility of an approach based on user demands, public private partnerships, African ownership, and building on existing successful initiatives. These projects shall begin in

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2008, serving selected isolated areas in Sub-Saharan Africa by offering clinical services and eLearning via satellite for infectious diseases, in particular HIV, tuberculosis, and malaria. The projects should and will be presented in China for finding bilateral cooperation between Italian and Chinese Civilian and Military technologies and opportunities present already in the field.

INTRODUCTION

Information and Communication Technology (ICT) offers a large variety of opportunities for world-wide advancements in health and healthcare. eHealth (the use of ICT in the health sector, for clinical, educational and administrative purposes, both locally and at a distance) and its sub-domain Telemedicine (the provision of healthcare services from a healthcare provider to a patient) are key enablers for supporting health systems and delivery of healthcare.

The second phase of the World Summit on the Information Society (WSIS) held in Tunis in 2005, adopted a Plan of Action that urges different stakeholders to contribute actively in utilizing ICT for the achievement of the Millennium Development Goals (MDGs) and for bridging the so called digital divide. Also in 2005, the World Health Assembly (WHA) passed a resolution urging countries to take advantage of the potential offered by eHealth to strengthen their health systems. In 2006, the WHA also requested World Health Organization (WHO) Member States, in another resolution, to use ICT to help address the global shortage of health workers.

This health workforce crisis is particularly acute in Sub-Saharan Africa where thirty-six countries have a health worker density below a critical minimum necessary for effective provision of basic health services, and where in many countries the health service coverage (Table 1) and the readiness for information society (Figure 1) are critically low. With a broad range of possible applications in support of health service provision, communication, education, business, and governance, eHealth offers a significant number of opportunities to address this health crisis (Asamoah-Odei, E., et al. 2007).

Despite the potential benefit of ICT for health world-wide, its utilization is in many countries still difficult or impossible, due to a lack of connectivity and network coverage, and other reasons such as for example illiteracy, regulatory, or cultural barriers. The prospect of using satellite communications technologies and associated connectivity services to support the development and dissemination of Telemedicine and eHealth applications was the reason why ESA began to be active in this challenging field (Feliciani, F., 2003). In 2006, efforts toward the support of Africa have been initiated by ESA in collaboration with the European Commission (EC), the WHO, and African stakeholders.

ESA TELEMEDICINE PROJECTS

Several different projects have been undertaken within the Advanced Research in Telecommunication Systems (ARTES) programme to explore and promote the different facets of Telemedicine via satellite, taking a pragmatic approach, addressing broadband applications, medical simulation, emergency consultation, teleconsultation, clinical research, access to patient multimedia databases, and continuing medical education (Feliciani 2003). These projects have been targeted at developing the hardware, software and content elements required by the specific Telemedicine applications and then using the resulting system in a pilot utilisation phase with real users and under truly operational conditions.

An ESA Road Map for Telemedicine via Satellite was worked out in 2003 and 2004, identifying needs and opportunities for using ICT in specific areas of healthcare, and the role that satellite communications can play therein (Dario, C., et al.

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