INDONESIA TO STRENGTHEN CITIZENSHIP THROUGH INFORMATION AND COMMUNICATION TECHNOLOGIES ON HEALTH

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The total land area of Indonesia is made up of 1.904.569 square kilometres. However, since it is an archipelago of volcanic islands, the extension of the country is far larger covering a surface of 5.193.250 square kilometres. The coastline is 54.720 kilometre long.

The big surface of territorial waters forces the people to move by air for long distances and by boat for short distances. Thus, the boat is the most common mean of transportation for patient referral, at least in the provinces of Bangka Belitung, Riau Islands, West Sumatra, South East Sulawesi, North Sulawesi, West Nusa Tenggara, East Nusa Tenggara, North Maluku, Maluku, West Papua, because such provinces are made up of small islands.

Provinces of Indonesia

However, the boat keeps on being an efficient mean of communication also in the continental areas of Sumatra, Kalimantan, Sulawesi and Papua, because rainfalls are of such high a level that rivers have large water flow and make up large and intricate basins within the rain forest where roads and other infrastructures are poor.

The distribution of the population is unbalanced as well: Jawa island, Bali island, Lampung, North Sumatera and South Sulawesi province are overcrowded (from a minimum of 150 up to over 2000 inhabitants per square kilometre), whereas all the remainder provinces are below 100.

Indonesia is also a mosaic of races and cultures preserved by the isolation that the sea has granted all over the centuries. For example, the Riau islands are 1499 and contains 338 ethnic groups. Two indexes portrait the multiethnicity of a country: the Ethnic Fractionalization Index (EFI) and the Ethnic Polarization Index (EPI).

Either of them is a number from 0 to 1. The higher the EFI the more the population is fractionalized into many ethnic groups. However, EFI must be complemented by the EPI, suggesting to us whether there is a prevailing ethnic group or not.

In Indonesia, unlike the highly populated Central and East Jawa, with high EPI due to the prevailing Jawanese ethnic group, all the Eastern provinces show very high EFI and very low EPI. For example, North Maluku province is a very heterogeneous province, as shown by the high EFI. The ethnic group of Tobelo is the biggest, but it is only 10,8% of the population, therefore the EPI is very low.

We can say that because of the geographical barriers, poorly concentrated population, high EFI and low EPI, some provinces, regencies and even districts of Indonesia are remote in the sense of difficult inter-people communications and dislocations.

The health manager, about to set-up health facilities in a certain area, usually has to take into consideration that physical and cultural access of the customers affects the level of service quality attainable, the resource collection and therefore the efficiency of the investments.

Customers direct themselves preferably to the same health facility of the one accessed by the members of the same ethnic group and escape from the others where they fear to be discriminated.

Moreover, architecture and health care proceedings are usually designed according to cultural standards. For example, toilets in a health centre are built according to a cultural standard; dealing with individual patient, privacy is to be fitting the inter-family member relationships; the patient-doctor gender relationships are fitting cultural precepts as well.

Lately, the mobile network has being developing at the utmost extent all over the country and therefore getting the most remote provinces served by telephone communications, which, sometimes, support also data transmission. Moreover, although the access of all the people to Internet services in the rural areas is still a chimera, the Ministry of Communication and Information Techology (MENKOMINFO) has planned to provide the public schools, health centres and other public service sites with a minimal package of infrastructure and connection at least to run ordinary affairs.

Since the foundation of the Republic of Indonesia occurred in 1945, the Indonesian governments had to challenge the heterogeneity of ethnicity and languages to strengthen citizenship. The need of challenging the barriers of the geographical and social settings of Indonesia just to improve public services, such as health services, makes the country be similar to other geographical areas completely different, such as Amazon or Congo river basin rain forest, Tibetan highlands and extremely dry desert lowlands. In all these conditions, people are scarce, live isolated and displacements from one area to another are expensive, uncomfortable and time-consuming.

Information and Communication Technologies, bridging the people, are really the mandatory tool to strengthen human relations, break cultural barriers of diversities, quickly assist people in their illness, improve security, decrease natural disaster vulnerability of isolated households, shorten city-countryside distances and therefore increase job opportunities and economic growth. Synthetically, we can say that Information and Communication Technology is the indispensable tool to upgrade citizenship and sense of nationality and contribute to build a quite large nation like Indonesia.

Since several years, the Iberian Society of Telemedicine and Telehealth (SITT), made up of scientist and health professionals committed to networking Portugal, Spain, countries of Latin America and Portuguese

speaking African countries, is endeavouring to give training on e-health to health sciences undergraduates, young health professionals and also students in their post-graduation master degrees through face-to-face and virtual seminaries.

In March 2018, the publication of the pedagogic textbook "E-saúde", with the support of the faculty of Medicine of Interior Beira University, was the real breakthrough for e-health teaching activities. Having focused the importance of ICT on health for Indonesia, the SITT has undertaken a cultural exchange with the Faculty of Medicine of Atma Jaya Catholic University of Indonesia and with Khairun University of Ternate (North Maluku Province).

With Atma Jaya, the following activities were carried out: a) Virtual seminary on medical teleconsultation proceeding in September 2017; b) On the 22nd of November 2017, lecture in Jakarta given to the students of the third year of the faculty of Medicine about justification of e-health for awareness building purposes; c) Joint mission to Mentawai Islands (Western Sumatra), where the Atma Jaya University team is running a programme of support to the primary health care system, in order to assess opportunities to strengthen the effectiveness of the programme through the implementation of ICT; d) meetings with the managing board of the Atma Jaya university to develop cooperation with SITT and Portuguese universities on e-health issues.

The audience of Atma Jaya University and the lecturer – 22nd of November 2017

Later on, the training focus was adjusted on deontology in medical teleconsultation, that is still a very controversial issue all over the world. For that purpose, a seminar was set-up in Jakarta under the chairmanship of Dr.

Tommy Tanumihardja, on the 9th of may 2018. The seminar, attended by undergraduates in medicine at their last years, was partly face-to face and partly in teleconference. Erfen Gustiawan Suwangto, Gatot Lawrence and Karel Dourman were the professors experienced in medical ethics and deontology and in pathology reporting from remote. They introduced deontological responsibilities in accordance to the benchmarks of the ethical behaviour approved in Indonesia. Part of the lecturers interacted from remote through Zoom platform. During the event, Portuguese, Brazilian, Italian and Indonesian deontological codes for medical doctors were compared and discussed.

The lecturer from remote exchange opinions about medical deontology and ethics in teleconsultation with Dr. Tommy Tanumihardja, chairman of the seminar and vice-dean of the Catholic University of Atma Jaya.

Unlike face-to-face consultation, medical teleconsultation forces the student to consider ethical behaviour before starting to practise.

It is also important to emphasize that Atma Jaya University has set-up campuses in West Papua and East Nusa Tenggara Provinces. The effectiveness and the quality of teaching in those far provinces are supposed to be supported by ICT tools like televideoconferencing and e-learning platforms to be developed in the next future.

Established in Ternate (North Maluku province), Khairun university has many faculties focusing either sciences, medicine and humanities, including languages. In the faculty of medicine the students are still at their second year. E-health is expectedly to be taught from the fourth year on. The cultural diversity in North Maluku makes Khairun University's managing board be very sensible to cultural and linguistic issues.

That is why the first introductory lecture, held by the Italian lecturer from the Iberian Society of Telemedicine and Telehealth, was about European and Italian culture.

Thereafter an e-health course was delivered over four days' time. In the first two days the attendance was made of public health undergraduates.

Therefore the topics chosen were: basic informatics, justification and disciplines of e-health, technology of teleconferencing for virtual seminars and e-learning.

Since the public health professionals are often involved in management of health facilities, the focus was on proceedings of hospital services such as biochemistry laboratory, radiology department and pathology department.

Radiology department, and also pathology department, are imaging based and therefore special attention was given to the format of images like DICOM and to the Picture Archiving and Communication System (PACS).

On the third and fourth day the attendance changed: they were professional pharmacists. Consequently, the topics chosen were about electronic prescription, drug store managing software and legal validity of digital documents.

Since pharmacies are used to deliver drugs and also sell medical devices, the course was closed by a two hours' long lecture about vital parameter monitoring devices and guidelines in negotiating with software providers, in order that the buying health manager could achieve the maximum of quality at reasonable costs. It is mentioning worth that the course in Ternate was held through slides translated into Bahasa Indonesia by the pupils.

Pharmacists attending the e-health course in Ternate – 4ᵗʰ of May 2018.

In Ternate the invited lecturer paid also a visit to the biggest referral hospital of the North Maluku province. In the Radiology Department, that was provided with a satisfactory connection, some multimedia tutorials previously published in the OPASRH *youtube* channel (www.youtube.com/OPASRH) were displayed and the lecturer gave explanations in-between the freezing of the streaming movie.

The doctors watched enthusiastically the manoeuvres of fine needle aspiration sampling of thyroid, breast and lymphatic glands.

The e-health courses and seminars held are supposed to develop into farther cooperation activities. For that purpose, the signature of Memorandum of Understanding between Khairun University from one side and the Interior Beira University and the SITT from the other are expected to happen by the end of June 2018.

The experiences made in teaching e-health in Indonesia as well as in Brazil, Italy and Portugal, were source of new ideas. First of all, since the topics, included in the pedagogic textbook "e-Saúde", are several, the package of knowledge that can be given to health profession undergraduates is wide and the training programme can be adjusted conveniently.

That happened in the Indonesia experience: the lecturer had to deal with different kinds of audience and therefore he selected topics accordingly to call the maximum of the attention from the audience.

Secondly, the translation of the slides from English into Bahasa Indonesia, enabled the lecturer and the pupils to get in touch with new vocabulary and therefore to arrange documentation for further e-health courses.

Thirdly, the cooperation between Khairun University and SITT was formalised. Thus the participants to the e-health course in Ternate were given a certificate of attendance signed by the lecturer, the rector and the president of the SITT. In the back the topics of the course were also reported.