Concluding Remarks

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Health and Poverty

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The end of poverty: economic possibilities in our time
Jeffrey Sachs

For 15 years, the **eight Millennium Development Goals (2000-2015)** had health as the main concern. They were: 1. Eradicate extreme poverty and hunger, 2. Achieve universal primary education, 3. Promote gender equality and empower women, 4. Reduce child mortality, 5. Improve maternal health, 6. Combat HIV/ AIDS, malaria and other diseases, 7. Ensure environmental sustainability and 8.Global partnership for development. The result of the implementation of these goals over these last 15 years was: a reduction of the rate of extreme poverty, especially in East Asia and Sub-Saharan Africa and a fall in the percentage of the global poverty rate by 27.4 points (from 37.1 % in 1990 to 9.6 % this year). Economic growth is strongly related to quality of education as measured by PISA exams, and life expectancy to the GDP per capita and in both cases there has been considerable improvement but children in Sub-Saharan Africa and southern Asia are at a higher risk of dying before their fifth birthday. From 1980 to 2010 there was a reduction in Malaria death by age and region and also in the last ten years, there has been an increase in AIDS treatment recipients and a reduction of AIDS deaths.

On September 25, 2015, the U.N. adopted new 17 SUSTAINABLE DEVELOPMENT GOALS (2016-2030), with a focus on economic well-being, social inclusion and environmental sustainability. These new goals are: 1: End poverty in all its forms everywhere, 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture, 3: Ensure healthy lives and promote well-being for all at all ages, 4: Ensure inclusive and quality education for all and promote lifelong learning, 5: Achieve gender equality and empower all women and girls, 6: Ensure access to water and sanitation for all, 7: Ensure access to affordable, reliable, sustainable and modern energy for all, 8: Promote inclusive and sustainable economic growth, employment and decent work for all, 9: Build resilient infrastructure, promote sustainable industrialization and foster innovation, 10: Reduce inequality within and among countries, 11: Make cities inclusive, safe, resilient and sustainable, 12: Ensure sustainable consumption and production patterns. 13: Take urgent action to combat climate change and its impacts, 14: Conserve and sustainably use the oceans, seas and marine resources, 15: Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss, 16: Promote just, peaceful and inclusive societies, 17: Revitalize the global partnership for sustainable development.

Now, the SDGs apply for all countries, rich and poor alike. They are universal goals and the highest priority is the SDG 1, to end extreme poverty. The GINI coefficient shows the global map inequality, where some countries have tremendous differences compared to others.

The Sustainable Development Solutions Network operates under the auspices of UN Secretary-General Ban Ki-moon, and engages scientists, engineers, business and civil society leaders, and development practitioners for evidence-based problem solving. Its members institutions, notably universities, research centers, and think tanks, work with government, business and civil society to promote innovations to support sustainable development (www.unsdsn.org)

Community-based healthcare in low-income settings
Sonia Ehrlich Sachs
Earth Institute, Columbia University, New York City

The disease burden in low-income settings such as rural Sub-Saharan Africa is vastly higher than in the developed countries. Poverty undermines health in many ways: under-nutrition, unsafe food preservation, unsafe water and sanitation, vulnerability to insect-borne diseases such as malaria, and lack of access to healthcare. Nonetheless, through careful work during the past 15 years (under the lead of the Millennium Development Goals), it has been possible to develop effective, low-cost systems for healthcare delivery that can dramatically reduce maternal and child mortality. Moreover, if those systems are combined in a more comprehensive manner with other interventions to address food security, nutrition, safe water, access to electricity, and better basic education, further gains in health can be achieved. This presentation discusses the up-to-date knowledge on how to deploy a low-cost, highly effective health system in a setting of extreme poverty, and describes more briefly how such a low-cost health system can be embedded in a more comprehensive program of integrated rural development. These tools can be effective in achieving the new Sustainable Development Goals.

Poverty and Health: the Anthropologic vision
Manuel Luis Marti – Olindo Martino

The presentation is related to my experience in the Northwest and Northeast of my country, a region full of very beautiful landscapes but with a great proportion of poverty, including deficient nutrition, water access problems, no toilets and very insufficient sanitary assistance.

Kwashiorkov due to protein malnutrition is one of the main pathologies in children between 10 months and 2 or 3 years old. The universal malnutrition known as Marasmo is more dramatic.

Pellagra is another frequent disease in the region, especially in homeless people.

According to Benedict XVI's teachings: "Poverty, abandonment and hunger are the most outrageous facts which afflict human life".

Magnitude and Characteristics of Poverty in Argentina
Luis Alberto Beccaria

The purpose of the presentation is, on the one hand, to provide estimates of the present magnitude of poverty in Argentina considering different methods. A brief summary of the main features of these procedures will be initially presented. On the other hand, I shall discuss some characteristics of poor households and their members.

The usually debatable measures of poverty incidence were subject to much controversy in Argentina since 2007 when data on the Consumer Price Index (CPI) began to lose credibility given the existence of clear signs of manipulation, leading to underestimation of its evolution. This is a basic input in the valuation of the normative budget – the poverty line – which is employed to identify poor households according to, perhaps, one of the most frequent approaches. In fact, the official estimates that were regularly produced since the beginning of the nineties were based on such methodology; they were discontinued in 2013. Given the impossibility of resorting to the official CPI, different estimates appeared that update the value of the poverty line according to evidence coming from different sources. Those estimates, for 2014, range from 20% to 23% when these lines are applied to the figures of income distribution coming from the permanent household survey. An overview of how the incidence of poverty evolved since the mid-seventies will be also presented

When a method of a multidimensional character is employed – the approach based on variables that indicate whether a household meets, or does not meet, specific basic needs – differences between measures are broader. Figures from the two estimates presented range from 15% to 23%.

The second part of the presentation focuses on some of the characteristics of poor households according to the poverty line, or income, approach. In particular, the analysis will try to identify factors associated to their low per capita income. Consequently, figures on the gap between poor and non–poor households will be highlighted regarding aspects such as household size, the ratio of the number of total members to the number of those earning any income (income dependence) and the characteristics of the jobs of the employed members. It appears that high-income dependence rates among poor households is linked to a large demographic dependency ratio, low activity rates, and high unemployment.

But low incomes of poor households are also linked to the reduced earnings obtained by their employed members as they mainly work in low-skilled jobs – due to their reduced level of schooling – in informal activities. Furthermore, the great majority of them are informal workers, especially employees not registered in the social security system and, consequently, not covered by the labour legislation.

The presentation concludes with general comments on the main policy orientations derived from the previous discussion.

Health in Argentina
Acad. Jorge Daniel Lemus
Academia Nacional de Medicina, Buenos Aires, Argentina

Argentina, in terms of health, is a country with basic indicators related to its particular level of development; such as a 90% urban population, a 98% literacy rate in over 10 years, a percentage of the population with NBI of 12.5%, life expectancy at birth of 75 years (72 males and 78 females) an infant mortality rate of 11.1‰ or a maternal mortality rate of 3.5#, higher immunization coverage at 90% and 32 physicians per 10,000 population.

Health spending as a share of GDP reaches about 8.5%. These indicators mask important differences among its 23 provinces and the Autonomous City of Buenos Aires, such as IMR 8‰ in Buenos Aires City and 17‰ in Formosa. There is also a bad distribution of physicians and deficient relationship with the number of nurses.

The right to health is guaranteed by the Constitution (social security) and in different national and provincial laws. The health area has not been delegated by the provinces (federal principle) to the national level, so each one has its own Ministry and its own Health Plan (Segmentation System). Investment in health over the total provincial budget can go from 7% to 20%.

The Health System is Argentina is divided into at least five subsystems; public, private, social security, PAMI (over 65) and the ART (occupational accident insurance). Each of these are divided into several subsectors (national public health institutions, provincial and municipal, social security for each activity, private such as private insurance funds, mutual funds, etc.) (Fragmentation System). This creates multiple coverages and crossed subsidies besides high transaction costs subsidies.

Several authors estimate that the current model of the Argentine Health System is unfeasible, not allowing the exercise of the right to healthcare or the same in terms of equity and quality. The actors and discussion spaces involved can recognize the magnitude of transaction costs present in any comprehensive reform bill, which would have implications not only in the field of health, but also in other areas such as tax policy or on the Work market. One reform would be a strengthening of multilateral forums and tools of negotiation between the main actors of the system. Argentina should be optimized in health investment and results. The problem is not lack of resources but the inefficiency of the system, the state does not guarantee access and quality health for all its inhabitants. There is no state policy of strategic long-term health. There is no efficient health plan that sets human and material resources for the whole nation. No continuity in policies and actions. There is no assessment of health and economic outcomes and results are not yet the ones expected in terms of health.

Health inequalities
Mónica Panadeiros

A vast literature has documented many cases of a positive correlation between health and income or, broadly, some measure of socioeconomic status. Among the poorest individuals, increases in income are strongly associated with increases in health status, and as income rises, the relationship flattens out and is weaker, but still present. Despite wide recognition of these “social gradients” in health – the term is used to emphasize that there are “graded” differences in health running across ranked groups, not just between poor and rich – there is considerable debate about the causes of these inequalities. According to a recent body of literature, not only income but income distribution is also related to individual health, but the theoretical basis and empirical evidence are more controversial concerning to this argument.

Based on household survey data, empirical evidence of social disparities in health – and also in determinants of health – is explored for the Argentine case. In this analysis, health is defined in relation to the individual's overall perception of his or her health. The main results of this analysis are the following:

a) A social gradient in health is confirmed, but there is no evidence of income inequality affecting individual health; b) There is a positive correlation between health insurance coverage and both, health status and income; But c) access to healthcare when sick seems not to be associated with the position in the income distribution scale; d) Only recently, there seems to be some differences in health-related behaviours across social groups; e) Significant social disparities have been found with regard to the use of preventive health services.

These results are interpreted in the context of the public health system of Argentina, characterized by a wide health service supply with enough financial resources to provide adequate coverage to uninsured (mostly poor) people.

Efficiency in Health. Some public policy recommendations
Jorge Colina

Efficiency is defined as the achievement of the best possible outcome given a predetermined set of inputs. In health, a divergence of sanitary necessities arises. Low-income countries suffer from a high infant mortality rate and illnesses related to childhood which demand population-based, low-cost, interventions. High-income countries, instead, face the high burden of end of life diseases which are personalized and very costly therapies. Efficiency criteria would recommend starting to allocate health resources in interventions aimed at tackling low-income countries' types of diseases, but political pressures tend to favour the allocation of resources aimed at financing the very costly therapies of the old. At this point, efficiency has to reconcile with equity considerations. Prioritization is key to reach the reconciliation between equity and efficiency. An outline of a rule to prioritize goals and organize the allocation of health resources is presented.

Disparities among the different health systems in Argentina and a plan towards health equity
Acad. Jorge Neira. Buenos Aires, Argentina

"Health in all policies" promotes intersectoral and transverse actions over health determinants in diverse environments. Health consists of a set of public policies involving all decision-making levels, economic sectors and social agents to promote its improvement. Health/disease determinants (poverty, education, healthcare access, dwelling, work, etc.) are relevant in determining a population's quality of life. They have been extensively documented. **Demographic transition** is related to prolonged life expectancy (more complex illnesses, higher costs). Resources overuse grows exponentially from 65 years old and quadruplicate over 80s. We need to promote community healthcare education and engage people in "responsible participation". **Epidemiological transition** shows a relative decrease of transmissible diseases and an increase of non-transmissible diseases (diabetes, obesity and cancer) and the overwhelming impact of trauma. **Transition of care models** obliges the health system to be sensitive to accessibility, equity and resources rearrangement. Demands are more selective and personal development and higher incomes produce greater community requirements. It is important to assure the same level of health quality, opportunity and accessibility to everybody through clinical management, process management, high resolution models and health services integrated networks. **Technological and therapeutic innovation** increases medical costs and forces the medical system to prioritize interventions based on ethical criteria and scientific evidence. **Health promotion and protection and disease prevention** reduce diseases risks factors, decrease susceptibility or reduce its aftermaths (primary, secondary and tertiary prevention). **Universal Health Coverage** is a statement of ethical commitment to people's rights. Effective practices analysis enables universal coverage sustainability (more primary care physicians, changes in curricula, services organization innovations, financial and management systems, new health technology – genomic and regenerative medicine – and integrated healthcare models). The Health System must prioritize resources allocation and assure healthcare equity and universality, taking into consideration not only impact on budget but also the value that technologies offer to improve patients' quality of life, from a rational standpoint. A **Basket of Health Services** is a set of services that healthcare subsectors should guarantee to the whole population (medications, interventions and treatments according to epidemiological profile) and rational use of available resources so as to make healthcare more efficient (epidemiological, economic and distributive justice viewpoint). Copayments may moderate demands (low-cost/high-frequency health services financing). Solidarity financing the high costs (society) and beneficiary copayment generate resources allocations more efficiently. People who cannot afford costs will have payment reduction and needy groups will be exempt from payment. Copayment will never be a limiting factor for receiving health services. Since 2007, more than a half of the world's population lives in cities and in 2030, 75% will do. Numerous health problems are related to overcrowding, lack of potable water access, environment

contamination, violence and non-intentional trauma, non-transmissible diseases, non-healthy food, lack of physical activity, alcohol and drugs abuse and epidemic outbreak risks. In the public sector, competences between central and local authorities must be decentralized, the role of regulation enhanced, public funds used to promote equity and to warrant proper healthcare to needy groups, and to enforce public health programs. Health investment must equilibrate other investments (education, labor, dwelling, environment, etc.). So as to promote a "long term structural change" an agreement is required between Nation and Provinces; enhance ANMAT's role (quality of medication, food and technology); create by law a National Agency Technology Assessment to assess its proper use, generate an efficient medication policy and start a National Quality Improvement Agency. The **levels of care** will be interconnected (networks, referral/counter-referral) and based on human resources trained according to needs and system planning, promoting registered nurses (improving physician/nurse/patient ratios) and primary care physicians training (general/family physicians). The **first level of care** is ambulatory (out of hospital) based on primary healthcare, teamwork with systemic approach, community education, health promotion, prevention and detecting problems in homes. Healthcare is provided in centers with several complexity categorizations: doctors' offices, neighbor and community health centers or ambulatory high diagnostic complexity centers. It includes low complexity ambulatory surgery (high complexity ambulatory surgery must be performed in hospital centers). It includes day hospital (chemotherapy), mental healthcare, home care (for early hospital discharges), planned and spontaneous healthcare demand and ambulatory urgencies (hospital network for efficient transfer), with medical records and complete registries so as to facilitate accreditation. The **second level of care** is provided by the emergency medical services system and general hospitals organized in progressive levels of care (high ratio of ICU beds), integrated with the first level (early discharges). The **third level of care** belongs to rehabilitation starting in hospital (early rehab) and admitted in the third level in the case of long term chronic patients or dependency care. It includes palliative care facilities (patients with terminal or chronic disease without rehab chances) and palliative home care, nursing homes, halfway houses and rehab of addicts. **Total quality** is a management strategy devoted to satisfying patients, employees, professionals and society needs and expectations, assuring efficient use of all available resources. It is based on facility categorization; health professionals **certification/recertification**; healthcare guidelines; undelegated official regulation and control; quality assessment and technical support and cooperation with all system participants. Through **categorization**, Official Institutions (Ministry of Health leadership) authorize a facility to provide healthcare in a defined complexity. **Accreditation** means that an external institution grants a formal periodic (5 years) recognition to a health facility or education program that complies with established scientific quality criteria by a peer review committee. An Accreditation Institute performs police control to assure federal compliance. Education process quality will be assessed by the Ministry of Education and incumbencies, competences and curricula contents will be regulated by the Ministry of Health (consensus with academic authorities). Quality improvement, research promotion, multidisciplinary teamwork and **certification/recertification** for professional specialties (mandatory to announce a specialist in every workplace) are emphasized. **Certification** is obtained in the corresponding scientific society (agreement with National Academy of Medicine and Argentine Medical Association to receive methodology homologation). School of Medicine graduated students will complete a mandatory medical residency to be authorized to work. Residence positions for primary healthcare must represent 40-50% of total specialties, primary healthcare specialty will be considered "critical" (best salaries and labor conditions). Finally, the State must respect, protect and guarantee healthcare and adopt legislative, administrative, financial, legal and promotional measures to satisfy full access to health rights. Health rights imply an ethical and responsible behavior of providers, researchers and decision makers.

Is a change in the Health System possible in Argentina?
Acad. Juan Antonio Mazzei
Academia Nacional de Medicina, Buenos Aires, Argentina

The results of Health in Argentina, which have already been analyzed, make it necessary to make changes to address the demographic and epidemiological transition as well as care models. The demographic transition includes a growing elderly population with more complex diseases and more expensive treatments. The epidemiologic transition requires a focus on the epidemic of chronic non-communicable diseases that are responsible for 65% of deaths: diabetes, obesity, cancers and chronic respiratory diseases.

The transition care model is aimed at achieving greater equity, rearrangement of resources, attention to the demographic transition and the need for more developed, more accurate financial systems linked to the health burden.

The objectives of change will be the resolution of segmentation, fragmentation and financing, achieving individual and collective community participation to achieve accessibility, timeliness and continuity of comprehensive care. Quality care should be essential and that would include a cost-benefit, opportunity-cost and social benefit analysis, the resolution of the triple transition and regionalization.

The instruments to meet national objectives should be: 1) Universal Health Coverage; 2) Promotion of primary healthcare; 3) Full quality assurance; 4) Regionalization and health service networks; 5) Changes in the care model; 6) Changes in the funding model; 7) Changes in the management model; 8) Optimization of resources; 9) Tools for health workforce; 10) Technology assessment; 11) Consideration of the legal aspects of health praxis; 12) Promotion and protection of health; 13) New health regulatory instruments.

The three key public policies will be the change in the care model, the change in the financing model and the change in the management model. The steps required to achieve these objectives will be to strengthen the guidance of the National Ministry of Health with the consolidation of the Federal Health Council (COFESA) and evaluation of its leadership role at a federal level. These are long-term processes with policies of successive approximations. The objectives must then be aimed at building long-term commitments and should convey confidence, political will, transparency and sense of reality, in order to avoid crises of expectations. External factors should be taken into account: economic, social or political crises that may interfere with the results of the reform, addressing migration flows, anarchic urbanization and population aging. The trust and commitment of all stakeholders are key factors for success; they require covenants, consensus, strategic alliances and broad participation.

Education and Poverty
Marita Carballo

In Latin America, the goal of securing educational quality for all has not yet been achieved and Argentina has lost ground over the last years. According to the PISA 2012 survey, which assessed the competencies of 15-year-olds in reading, mathematics and science, Argentina ended up in 59th position among 65 countries and 6th among the eight Latin-American ones. And this weak performance was much more marked among poor students. The achievements of 15-year-olds from the lower classes were the fourth worst among the 65 countries and they were two school grades behind their peers from the upper classes. Moreover, students who attend private schools were one school grade and a half above those from public schools.

According to the latest report by the Barometer of Argentina's Social Debt, issued by the Argentine Catholic University last July, 28.7% of the country's population was poor. But while 10.9% of people with secondary education were poor, 44.7% of those who had not finished high school were living in poverty. In Argentina informal work is closely associated to poor educational achievement – almost 3 out of 10 workers are in the informal sector and thus out of the social security system. Likewise, 6 out of 10 informal workers dropped out of high school and in 2010, when the unemployment rate was 7.7%, 21% of those with formal jobs were out of work as against 71% of people with informal work.

Education has not been a priority in Argentina over the last few years whilst insecurity, inflation, and unemployment have topped the list of concerns. A survey conducted by Voices, the consulting firm I chair, showed that 6 out of 10 Argentines have a regular or negative view about the quality of education. However, when it comes to assessing the education their children are receiving their evaluations are mostly positive. There is clearly a dual trend: parents criticise the system in general but its shortcomings are seen as other people's problems because they consider their own children's education good. This may explain the findings of a World Values Survey poll regarding parental concerns about being unable to give their children a proper education: Argentina appeared 40th among 48 nations, with only 22% of respondents showing deep concern.

The critical status of Argentine education must become a priority to combat poverty and reduce inequality. It is crucial to put education in the political agenda and civic society must push the leaders to take special care of this. Quality education is a right for children and young people and, at the same time, something badly needed for society as a whole. Today, half of the young people do not master the knowledge, abilities, skills and competences indispensable to access full social integration – and the poor are those who suffer most.

Drug Addiction and Poverty
Acad. Alberto Eduardo Riva-Posse

The nature of addiction is frequently debated as either a personal "lifestyle choice" (moral decision) or a "biological vulnerability". Current evidence shows that most drugs of abuse exert their initial reinforcing effects by activating reward circuits in the brain and that, while initial drug experimentation is largely a voluntary behaviour, continued drug use impairs brain function by interfering with the capacity to exert self-control ("brakes") over drug-taking behaviors, rendering the brain more sensitive to stress and negative moods. Drugs modulate the expression of genes involved in neuroplasticity through epigenetic and possibly RNA modifications, ultimately perturbing intracellular signaling cascades and the neuronal circuits whose dysfunction has been implicated in the long-lasting changes associated with addiction (chronic brain disease). Changing this is possible but a hard task.

The causes of addiction are many and include:

1) *Genetic tendency*; 2) *Family structure.* The deterioration of family structure, mentalization and attachments, facilitates addictions. A strong parent-child bond is the best defence against risky behaviour; 3) *Addictive personality*; 4) *Psychological problems and immaturity*; 5) *Socialization. Peer pressure.* Experimentation during adolescence with alcohol and drugs are factors that induce addiction; 6) *Stress.* Poverty. Lack of resilience facing life pressures. The loss of sense of meaning and purpose make some middle class people more prone to succumb to drug addiction, alcoholism and related diseases *(Angus Deaton)*; 7) *Social disorganization. Violence. Criminality.*

Hunger, lack of education, early brain impairments, criminality and drug addiction are usually associated with Latin American countries, but they are a problem all over the world. Because the brain is the organ from which all cognition and emotion originates, healthy human brain development represents the foundation of our civilization. The influence of poverty on children's learning and academic achievement is mediated by structural brain development.

Accordingly, there is perhaps nothing more important that a society must do than foster and protect the brain development of our children (A. Albino). Poverty is tied to structural differences in several areas of the brain associated with school readiness skills. Among children from the poorest households, regional grey matter volumes of children below the poverty level were under the developmental norm. To avoid long-term costs of impaired academic functioning, households below the poverty level should be targeted for resources aimed at remediating early childhood environments.

Laws and regulations are insufficient in the long run to curb addictions, even when effective means of enforcement are present. The legalization of drug consumption in the name of free will is not a good way to begin to control the addictions. First of all, the majority of the members of society must be adequately motivated to accept healthy behaviors and comprehend the impairing consequences of addiction. It is necessary that the majority be transformed to respond to the call of plenitude of life.

The kind of convictions and attitudes which help to protect oneself, one's family and one's community, is elicited by an appropriate education. Education about the harmful consequences of addictions in the school years is indispensable. Taking care of the children's brains strengthens the family in order to highlight the greater importance of good attachments and family ties that lead to the development of resilient personalities. After these social changes are obtained, the legalization of drugs, as it happened with alcohol, is a point to be discussed afterwards with statistics of results in populations without the handicaps of lack of education and opportunities for progress, disintegrated families, poverty-related stress, etc.

Ending Hunger: Six Key Public Policies
Patricio Millan

Hunger is the most concrete, cruel and humiliating sign of poverty.

Human dignity is affected by hunger. Chronic hunger not only diminishes physical and mental capabilities but contributes to loss of self-esteem, apathy and lack of social purpose. It is well known that hunger and malnutrition during the first 1000 days of a child's life causes permanent damage in cognitive capacities and leads to a future life of low-paying jobs and poverty. In several countries the inadequate attention given to the problems of hunger and malnutrition has limited the impact of poverty reduction policies and development strategies.

According to the latest data from FAO, in the world there are 795 million persons who suffer from hunger ("prevalence of undernourishment"). The highest numbers are in India and China, but as a proportion of total population the most affected countries are Burundi, Eritrea and Haiti. 165 million children below age 5 suffer "stunting" (low height for age) because of chronic hunger and undernutrition. The absolute number of deaths of children below 5 years is 6.6 million per year and almost half of them are related to nutrition problems.

Argentina is one of the leading producers of food in the world, but in 2014 – according to studies of the Catholic University of Argentina – 13.8% of households and 21.5% of children experienced hunger. This is in spite of private and public food assistance programs and of the tremendous increase in national social assistance programs that have reached 5% of GDP and had 18 million beneficiaries. In the lowest quintile of income distribution hunger affects 44% of the children in this group.

However, hunger can be eliminated. In June 2012 the Secretary General of the United Nations, during the Sustainable Development Conference Rio + 20, launched the "Zero Hunger Challenge" and this goal was also included in the 2030 Agenda for Sustainable Development adopted by the United Nations in September 2015. Ending hunger requires a real political commitment by the authorities of each of the affected countries and the

quality implementation of an integrated and holistic strategy. The strategy must include targeted interventions to directly end hunger in each of the affected households and structural reforms to increase employment and income opportunities for the population that is poor and vulnerable. It is a "**double track strategy**", where both components are necessary and must be implemented. Inadequate policies in any one of them will cause failure to reach the desired objectives. A crucial element of the "double track strategy" are necessary reforms in labor markets to eliminate the present employment segmentation, where a huge proportion of workers cannot find decent jobs and can only become "informal" workers in low-paying low-productive activities. The reforms must consider the problems of labor demand and supply, increasing education and training for the poor, simplifying labor and tax legislation and providing adequate support for the development of small enterprises. Other policies in the structural track include reforms in the educational sector to assure that the poor receive quality education and targeted intervention to eliminate poverty in rural areas and in specific underdeveloped and poor geographical zones.

A crucial element of the direct policies to end hunger at the household level is the total elimination of malnutrition among children less than 5 years old. The interventions that are needed for this purpose have been extensively studied and are well known (a good summary is presented in the journal *The Lancet* of August 2013). Among others, they include support for women during adolescence and reproductive years, prenatal and post-partum healthy maternity services, adequate treatment of infectious diseases among children, appropriate monitoring and follow-up of children with nutrition problems and specialized centers for the treatment of the most severe cases. Other policies in this track include improved design, targeting and management of conditional cash transfer programs and of school feeding programs.

Overview of the implications of climate change for human health
Walter Ricciardi
Istituto Superiore di Sanità - Italian National Institute of Health

It is important to tackle the impact of climate change on health by drafting a genuine universal agreement which would put health to the foreground in the debate on climate change and would reduce the serious health-related risks the world faces today.

Major future climatic phenomena represent a significant risk both for health and for the lives of the most vulnerable people. The consequences on individuals' health will vary substantially depending on their economic, social and cultural background.

Public health actors and the entire global medical community welcome all measures which prevent the degradation caused by climatic events, the impact of which can be observed on a daily basis (floods, storms, desertification, changes to the ecosystem for both flora and fauna – including disease vectors – extreme weather conditions...), and which prevent the direct and indirect consequences of these impacts on the health of individuals and populations: deaths and medical emergencies, infectious diseases, physical and mental disabilities, breakdowns within the healthcare supply chain and existing health infrastructure, and mass displacement of populations.

Any climate-related action that recognizes these challenges should maintain and improve health, benefit sustainable development and enhance worldwide equity.

The Public Health community is concerned that the COP21 does not take health measures that are necessary to address climate-related events and take consequences sufficiently into account.

On the occasion of the next global summit, it is important to underline the legitimate role and place of health professionals who are involved at many different levels in providing healthcare for the current and future victims of climate change consequences in their role in the prevention of diseases caused by climate-related disasters and the promotion of public health policy at the service of the patients; in their role as healthcare providers for populations in emergency health situations where urgent primary healthcare interventions are required; and in addressing chronic diseases or illnesses caused by climate change.

Climate Change, poverty and health
Andrew Haines, London School of Hygiene and Tropical Medicine

Warming of the climate system, due largely to the burning of fossil fuels and land use change, is now considered by the UN Intergovernmental Panel on Climate Change to be 'unequivocal'. Over recent decades many of the observed changes have become unprecedented in magnitude, in some cases for millennia. It is projected that 2015 will be the hottest year on record, around 1°C above the average global temperature from 1850-1900. Warming of the atmosphere and oceans has been accompanied by diminishing snow and ice, together with rising sea levels. The atmospheric concentration of carbon dioxide, the major greenhouse gas, is at the highest

level for at least 800,000 years. Despite the dangers, governments around the world continue to subsidise fossil fuels. According to a recent report from the IMF pre-tax subsidies amount to over $5 tn annually largely as a result of a collective failure to take into account the full costs of fossil fuel combustion including air pollution and the projected damage caused by climate change.

There is increasing evidence that climate change will have far ranging and potentially catastrophic effects on health with the largest burden falling on the poor, who have contributed least to the problem. The effects of climate change may be direct (e.g. the effects of increased numbers of hot days), mediated through ecosystems such as changes in the incidence and distribution of vector-borne diseases including dengue and malaria, and those effects mediated through complex socioeconomic pathways such as impoverishment and population displacement.

A major concern is the adverse effects on crop yield as a result of climate change. The IPCC for example estimated a likely median decline of 0-2% in crop yield per decade whilst demand for crops is increasing at 14% per decade. A systematic review of over 1000 studies suggested that “climate change is a threat to crop productivity in areas that are already food insecure”. There is evidence that severe childhood stunting in Africa and South Asia will increase markedly under climate change.

Many poor populations are exposed to an increased risk of extreme climate events, for example because they live in areas more prone to flooding than more affluent populations or because pre-existing illness such as HIV make them more vulnerable to undernutrition. Climate change can push more people into poverty, for example increasing thermal stress reduces the ability to work outdoors in sub-tropical and tropical climates and will therefore reduce income of already deprived populations. Many policies to reduce greenhouse gas emissions can yield improvements in human health, for example reduced coal combustion can lead to reduced air pollution deaths and increased walking and cycling in cities can reduce air pollution and the incidence of diseases related to physical inactivity (e.g. ischaemic heart disease, stroke, diabetes). Providing clean, affordable household energy can reduce deaths from household air pollution and the emissions of black carbon, a short lived climate pollutant from burning of solid fuels for cooking, heating etc. The provision of solar lamps in place of kerosene lamps can provide affordable lighting and reduce black carbon emissions, improving health, security and educational opportunities in disadvantaged communities. Dietary change resulting in reduced animal product consumption in high consuming populations and increased consumption of fruit, vegetable and seeds can reduce GHG emissions and land use requirements as well as improving health.

It is imperative to keep warming to less than 2°C above pre-industrial levels by a strong agreement in Paris to cut greenhouse gas emissions rapidly. Many policies to achieve the necessary emission reductions can also lead to major near term improvements in human health. Valuing these co-benefits can make such policies more attractive to decision makers and incentivise action.

Climate change, health and poverty
Dr Maria Neira, WHO Director, Department of Public Health, Environmental and Social Determinants of Health

Not long ago climate change was thought to be an issue of the future – a problem that would most impact our great or great grandchildren, years from now. This is far from the truth. Climate change is the defining issue for the 21st century. According to WHO estimates, climate change is already causing tens of thousands of deaths every year – from shifting patterns of disease, from extreme weather events, such as heat waves and floods, and from the degradation of air quality, food and water supplies, and sanitation.

In less than two weeks, an estimated 25,000 delegates will meet in Paris at the Conference of Parties (COP 21), also known as the United Nations Climate Change Conference, with the aim of adopting a treaty and committing to keeping global warming below 2°C.

The United Nations Climate Change Conference (COP 21) in Paris offers the world an important opportunity to not only reach a strong international climate agreement, but also to protect the health of current and future generations. WHO considers the Paris treaty to be a significant public health treaty – one that has the potential to save lives worldwide.

In 2012, WHO estimated 7 million people died from air pollution-related diseases, making it the world’s largest single environmental health risk. It is predicted that climate change will cause an additional 250,000 deaths per year from malaria, diarrhoea, heat stress and under-nutrition between 2030 and 2050. Children, women and the poor in lower income countries will be the most vulnerable and most affected, widening health gaps.

As WHO’s new series of climate change and health country profiles illustrate, investments in low-carbon development, clean renewable energy, and strengthening climate resilience, are also investments in health. The profiles provide a snapshot of up-to-date information about the current and future impacts of climate

change on human health, current policy responses in individual countries. They also highlight that actions to mitigate climate change, such as shifting to cleaner energy sources, public transport, walking and biking, can also benefit health. For example, the profiles show that a combination of high greenhouse gas emissions and weak protection would expose an additional 7 million people annually in Bangladesh to coastal flooding and its associated health risks between 2070 and 2100; while low emissions and strong adaptation measures could reduce this to approximately 14,000. In Nigeria, implementing measures to reduce short-lived climate pollutants could prevent almost 70,000 premature deaths per year from outdoor air pollution, from 2030 onwards.

From now until COP 21, WHO is calling on all citizens and health professionals to advocate for a healthier and more sustainable future by signing our call to action at www.who.int/globalchange. Let's go to Paris as one voice and make sure our health and the health of future generations are at the centre of the climate change negotiations

The United Nations Climate Change Conference is the time for the health community to lend their voice to the international climate discussion and ask countries to come together and make bold commitments to protect our planet and the health of current and future generations.