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Editorial

“How innovation in knowledge reduces food destruction and hunger in the world”. Presentation of the volume



Como la innovación en el conocimiento reduce la destrucción alimentaria y el hambre en el mundo. Presentación del volumen

I am pleased to present this monographic issue on “How innovation in knowledge reduces food destruction and hunger in the world”, a work of multidisciplinary nature that falls within the scope of permanent research on hunger and poverty in the world, a line being developed by the Catholic University of Valencia (UCV). This line of research, within the framework of the academic work carried out by the Saint Thomas of Villanueva Chair of Theology of Charity, under the title of “Poverty and Denunciation of Food Destruction. Famine in the World and Emerging Foods”, has a team of 50 thinkers and experts from different fields around the world.

In this volume we now present what we believe is a valuable contribution to research, given the outstanding qualifications of the various authors who collaborate in it, coming from different universities and research centers around the world. Each one of them collaborates from their discipline and specific knowledge, but from a professional and personal commitment in order to carry out this project with the utmost diligence and rigor in a multidisciplinary effort that also requires time, dedication and generosity, circumstances all of which I deeply appreciate and thank each of the experts who collaborate in this project.

The motivations of our research work and the line of action we are developing on the problem of poverty and hunger in the world are very deep and rooted in our own identity as a Catholic university committed to serving society in the search for sustainable and innovative solutions that can help address the problems of humankind, from respect to the dignity of the human person. We are fully aware of our serious responsibility as a social and educational institution to hear the cry of mankind in our time, to listen to it, to welcome mankind and to seek viable and sustainable solutions, putting knowledge and new knowledge, wherever they are, at the service of the human person.

Hunger in the world is a problem that affects almost 800 million people in the world directly, people who do not have enough to eat, and who account for approximately 10% of the

world's population according to FAO¹ data. But it also indirectly affects about 1.2 billion people globally, who do not know whether what they eat is safe or whether their diet is nutritionally correct or reliable. This is the problem of hunger in the world in its entire dimension and extent, which is not only related to malnutrition, due to a deficient continuous caloric intake, but malnutrition and lack of food security as well as other problems that generate deficiencies and diseases. We must bear in mind that certain diets that are usually consumed in some developing countries are unbalanced because they lack certain micronutrients – i.e. proteins, lipids, vitamins and minerals – that condition, limit or even prevent full human development, causing diseases, delays, deficiencies, disabilities or even death, and especially affecting children in these countries, a fact that is reflected in their infant mortality rates.

We know that the world we live in today is a global world, where problems have a planetary dimension, a true *global village*² where everything is related, interdependent, and no longer only in a technical or communicative sense, as some theorists put it a few years ago, but in other areas as well: environmental, demographic, socio-economic, etc. Problems today are of a global scale, with causes and effects in very different areas and fields, as Pope Francis enunciated and lucidly assumes in his encyclical letter *Laudato Si*. Therefore, it is necessary to frame this problem of hunger and poverty in the

¹ 795 million people according to the report on *The State of Food Insecurity in the World*, FAO, 2015. This figure matches that of the *Global Hunger Index* and other sources.

² A well-known concept introduced by McLuhan, to characterize the human interrelation seen in our time, the phenomenon of globalization made possible by the technological progress that appears in his works *The Gutenberg Galaxy: The Making of Typographic Man*, of 1962, *Understanding Media* of 1964, although the dimension of a world closely interrelated goes far beyond the communicative and technological spheres where this concept was formulated and encompasses other dimensions.

world within the global dimension of the problems faced by mankind in our time. And although many times the symptoms of problems, their specific external manifestations, will show up or can be observed in a given area, i.e. an area geographically, politically or structurally limited, or restricted in whatever form, we should not naively believe that they originate from, or are necessarily circumscribed to, the field where they appear, or in the order in which they appear.

The problem of hunger is also a complex issue, motivated by various causes and of different nature, which are sometimes interconnected, and which must therefore be approached in a multidisciplinary way, as we do in our research work. We also believe that a reality is methodologically better examined and weighed up if it is evaluated from different areas of knowledge and from different perspectives, than if this is done from a single perspective. Therefore, our approach to the question is necessarily multidisciplinary, seen both from the perspective of humanities and experimental sciences, from theology and food innovation as well as from various approaches, thus trying to reflect the various positions encountered, even in the most controversial and discussed matters, as it is clearly reflected in this volume; but always looking for solutions to problems in such serious and pressing problems as hunger, malnutrition and food security.

In short, it is a question of analyzing situations and denouncing problems, but also of finding means and offering solutions, so that other people and institutions can join in, as the Church has so often done in its commitment to promoting mankind. It is not a commitment to mankind in a general sense, as some ideologies do, but with the specific human person, with each man, whom we recognize as a person, as a brother who suffers and who claims our attention, especially if he is in a situation of risk or vulnerability. If universities are committed to human progress and research at the service of social advancement, they cannot neglect this human drama.

The university cannot, therefore, stay out of the problems that beset man. It is a commitment to the dignity of man in our time. In relation to the dignity of the human person, *Gaudium et Spes* states about our age: “At the same time, however, there is a growing awareness of the exalted dignity proper to the human person, since he stands above all things, and his rights and duties are universal and inviolable. Therefore, there must be made available to all men everything necessary for leading a life truly human, such as food, clothing, and shelter; the right to choose a state of life freely and to found a family, the right to education, to employment, to a good reputation, to respect, to appropriate information, to activity in accord with the upright norm of one’s own conscience, to protection of privacy and rightful freedom even in matters religious”.³ Respect for human dignity begins with minimally decent living conditions, of which the first is food.

The UCV is committed to human development from the respect to dignity in all areas of our course of action. In this sense, *Gaudium et Spes* reminds us that “whatever violates the integrity of the human person, such as (as specifically stated);

subhuman living conditions (...); all these things and others of their like are infamies indeed. They poison human society, but they do more harm to those who practice them than those who suffer from the injury. Moreover, they are supreme dishonor to the Creator”.⁴ In this regard, the subhuman living conditions experienced by some of our brothers do not dishonor and question them, the poor, but the rest of men.

Also the encyclical *Populorum progressio*, devoted to the cooperation between peoples and the problems faced by the developing countries, which denounces that the gap between the rich and poor countries keeps widening, recalls the duty of “Aiding the weak”, and more specifically in the fight against hunger. In this encyclical Paul VI reminds us that “the duty of promoting human solidarity also falls upon the shoulders of nations”,⁵ in an allusion to one of the fundamental principles of the Social Doctrine of the Church, namely, to moderate extreme and unjust inequality, not only among people, but also among the different nations.

The Catholic University of Valencia (UCV) is committed to continue investigating the problem of hunger in the world and stands firm in its commitment to help alleviate this scourge both from an intellectual, spiritual and social perspective in communion with Pope Francis, who is constantly calling for the presence of thinkers and the presence of the Church among the poor. We are deeply grateful for the collaboration of all the institutions, universities and research centers who wished to join in and contribute to this project, and thank especially the doctors and experts who collaborated in this research work and in this volume we are now presenting.

I would first like to thank Dr. Werner Arber, a professor at the University of Basel in Switzerland and Nobel Prize laureate for Medicine, who has been collaborating with us in this line of research, including his presence at the I International Conference on “Poverty and Denunciation of food destruction. Famine in the World and Emerging Foods” held in Valencia on October 13, 14 and 15, 2016. In his publication in this volume, the Swiss researcher specially values the contributions that modern genetic engineering can make to solve the problem of hunger in the world. In this regard, Dr. Werner states: “Carefully undertaken genetic engineering represents a very safe method to enrich particular important food crops for essential nutritional contents”. It is a sign of hope of the viable solutions that we can find in the developments of current genetic science in order to meet the growing needs for food and the improvement of nutrition that mankind needs. It should be recalled that, according to a number of projections made by various international bodies and studies collected in FAO’s report, *How to Feed the World in 2050*, it is estimated that by the year 2050 about 70% more food will be needed to supply the world’s population in those dates; a population that will reach approximate total figures of around 9600 million people.⁶

⁴ Ibidem.

⁵ PAUL VI: 48. Encyclical Letter *Populorum Progressio*, Rome, 1967. Retrieved from: http://w2.vatican.va/content/paul-vi/es/encyclicals/documents/hf_p-vi_enc_26031967_populorum.html.

⁶ According to estimates by the UN Development Program (UNDP) study, the World Bank, the UN Environment Program (UNEP) and the World Resources Institute reflected in the report *How to Feed the World in 2050*. Available at: <http://www.fao.org/>

³ PAUL VI: Vatican II. Pastoral Constitution *Gaudium et Spes* on the church in the world today. Rome, 1965. Retrieved from: http://www.vatican.va/archive/hist_councils/ii_vatican_council/documents/vat-ii_const_19651207_gaudium-et-spes_sp.html.

I would also like to thank Dr. Ingo Potrykus, Professor of Plant Science at the Swiss Federal Institute of Technology (ETH) in Zürich, Switzerland, who tells us about his research experience in the development of Golden Rice, an example of the possibilities being offered by emerging bio-fortified foods: “If you want rice which has provitamin A in the endosperm, there is no choice. The amazing situation is that when we started to work on vitamin A and rice, nobody talked about ‘bio-fortification’. Bio-fortification means to use the power of genetics to enhance the micronutrients of crop plants. We worked for nearly 7 years until somebody coined that term bio-fortification. So the Golden Rice is, without any doubt, the first example towards bio-fortification”. The Golden Rice was a pioneering development in this field, although – as the author himself tells us – it already has a long history of research and a stable development not free from obstacles and difficulties of all sorts.

I extend my gratitude for his contribution in this project to Dr. Gines Marco, Dean of Philosophy at the UCV, who in his article “Towards an anthropology that promotes the dignity of the human being”, plagued with references to the great thinkers of our time, explains that “We find ourselves in a historic moment in which glaring inequalities make a very clear call on our sense of responsibility”. From this sense of responsibility claimed by Dr. Marco, we cannot allow ourselves to be swept away by the global indifference of our time that stands idly by as the situation escalates.

I would also like to thank Dr. Roberto Sanz Ponce and Dr. José Alfredo Peris Cancio as well as Professor Juan Escámez Sánchez for their contribution to the fight against poverty in education. These experts have argued that “In the social arena, the fundamental question is: how can a university interact with society to effectively promote the development of human capacities: quest”. It is the question of how we deliver our service to society in universities and educational institutions, given that it is in the very DNA of the university, as a social and educational institution of Christian origin, its commitment to knowledge put at the service of the promotion of the human being from the recognition of his inherent dignity.

Lastly, I would like to thank my colleague, Dr. Sergio Pérez Ruiz, for his contribution from the field of psychology, to help us propose innovative models for accompanying disability in the complicated situations where disability is linked to poverty. From a care approach inspired by Christian anthropology, new perspectives are opened in the accompaniment of these people. “In this integral anthropological model of accompaniment that we are proposing, verbal and nonverbal communication, i.e. gestures, looks and silence, play a very significant role, starting from the fact that every person is social and communicative”, thus considering very subtle and delicate aspects of interpersonal communication as determinant in the quality of the aid given, which we prefer to call accompaniment in line with our anthropological vision.

We find our deepest motivation in the *Spe Salvi* by Benedict XVI and in the concept of charity shown in chapter 25 of the Gospel of St. Matthew, where it is stated: “For I was hungry and

you gave me something to eat” (Mt, 25:35), “thereby indicating that charity, the generous opening to our neighbor, the communion that leads us not to be disinterested in their problems and needs is our human essence, created in the image and likeness of God, who is Love”.⁷ And he adds that “the exercise of this charity is a true “service” to God, who through the Incarnation of his Son is present in every human being and especially in the neediest. To feed the hungry, then, is for the Christian a religious task, a work of “mercy”, through which faith is expressed in our God, who is mercy”.⁸ We wish to expand on this sense of charity not only to permeate our research, but also our social and spiritual action.

In his Encyclical *Caritas in Veritate*, our former Holy Father reminded us that “Feed the hungry (cf. Mt 25: 35, 37, 42) is an ethical imperative for the universal Church, as she responds to the teachings of her Founder, the Lord Jesus, concerning solidarity and the sharing of goods”.⁹ Therefore, in our Catholic university, in coherence with our goals and with our own identity as a Catholic university at the service of the promotion of man and his dignity, we cannot ignore such urgent and decisive problem, and we want to tackle it in all its dimensions, both intellectual, social and spiritual.

The ultimate motivation for this project lies in the very demands of the Gospels to face this problem seriously when Jesus himself says, “For I was hungry and you gave me food; I was thirsty, and you gave me drink; I was a stranger, and you welcomed me; I was naked, and you clothed me; I was sick, and you visited me; I was in prison, and you came to me” (Mt 25: 35–45), which is related to the need to give food and assistance to the poor and hungry in the earthly dimension with the eternal dimension. But he also states that “Man shall not live by bread alone, but by every word that comes from the mouth of God” (Mt 4: 4). Therefore, our work also wants to take into account all the poverty that men suffer, being aware that the greatest poverty is not having God, thus reducing hope of life to the limits of death. We believe that the spiritual dimension is therefore necessary, or rather fundamental, in any approach that wants to respond to the needs of man in a comprehensive sense. If the Gospels have a message of hope for men, without which only the horizon of death remains, we must consider it since man needs to open to hope. We cannot work in despair. Reason is not enough for itself; it needs to open itself to faith and hope.

In this regard, we join Pope Francis who already denounced to FAO in 2013, “These tendencies lead to a certain attitude of indifference — at the personal, institutional and State level — toward those who are dying of hunger or suffering from malnutrition, almost as though it were an inevitable fact. However, hunger and malnutrition can never be considered a normal occurrence to which one must become accustomed, as if it were part of the system. Something has to change in

⁷ Navarro Sorní, M. (2016). *Teología de la caridad*: “Tuve hambre y me disteis de comer”. In: Sánchez García, J. L. (Coord.), *Pobreza y hambre en el mundo: análisis interdisciplinar* (pp. 32–33). Valencia: Universidad Católica de Valencia San Vicente Mártir.

⁸ *Ibidem*.

⁹ Holy Father BENEDICT XVI: Encyclical Letter *Caritas in Veritate*, 2009, no. 27. Available at: http://w2.vatican.va/content/benedict-xvi/es/encyclicals/documents/hf_ben-xvi_enc_20090629_caritas-in-veritate.html.

ourselves, in our mentality, in our societies”.¹⁰ We must reflect and become aware that we cannot accept this situation, it has to affect us personally, it has to hurt us and we have to question not only our conscience, but our lifestyle and make us reconsider our social, economic and organizational structures, even the sense of purpose of our quest for knowledge and innovation.

We do not want to tackle this problem only in its superficial manifestation, in its more or less visible symptoms, but as Pope Francis has asked us, we must face it and address it “in its deepest causes.”¹¹ We cannot avoid problems, or look the other way, but we must address it with the full potential of our abilities. Although we are convinced that we should not rely on innovative solutions to knowledge, on technology or a change in structures, since we believe that a deeper, more radical change, a change in the human being is needed; we need to forge a new humanity from the spiritual dimension.

We believe that it is necessary to open ourselves to the future of research and explore possibilities starting from

the keys provided by the encyclicals *Popularum progressio* and *Laudato si*, by developing a document on sustainable development in the new perspective of a comprehensive environment in which universities and research institutions from different regions take part. It is our commitment, the commitment of the Catholic University of Valencia as well as of all people of good will and the institutions who share this feeling and would like to join in responding to the needs and problems faced by mankind in our time.

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¹⁰ Available at: <http://caminocatolico.org/home/index.php/papa-francisco/10555-papa-francisco-a-la-fao-es-un-escandalo-que-todavia-haya-hambre-y-malnutricion-en-el-mundo>.

¹¹ Holy Father Francis: *Encyclical Letter Laudato si'*, Rome, 2015. n.15. Retrieved from: http://w2.vatican.va/content/francesco/es/encyclicals/documents/papa-francesco.20150524_enciclica-laudato-si.html.