

# The Giessen Declaration



*As participants in the meeting held at the Schloss Rauischholzhausen on 5–8 April 2005 under the auspices of the President of the University of Giessen, the President of the International Union of Nutritional Sciences, and the President of the World Health Policy Forum, we affirm and declare the following.*

We acknowledge the work already done by institutions, organisations and individuals in Africa, Asia, Europe and the Americas that are already addressing the issues, challenges and resolutions set out here.

## **1 Biological, social and environmental dimensions**

Now is the time for the science of nutrition, with its application in food and nutrition policy, to be given a broader definition, additional dimensions and relevant principles, to meet the challenges and opportunities faced by humankind in the twenty-first century.

As originally conceived and as now usually studied and practised, nutrition is principally a biological science. This classic biological dimension of nutrition science is and will remain central. Descriptively it is concerned with the interactions of food and nutrition with physiologic, metabolic and now also genomic systems, and the effects of these interactions with health and disease. Prescriptively it deals with the nutritional control and prevention of disease and the improvement of health in humans, at all levels from individuals to populations; and also with animals and plants usually as human resources.

Those now concerned with the future of the world at all levels, from local to global, generally agree that their overriding shared priority is to protect human, living and physical resources all together, in order to enable the long-term sustenance of life on Earth and the happiness of humankind. Nutrition science is one vital means to this end.

This implies expansion and enlargement of the science, and its identification as a broad, integrative discipline, enabled to identify and address the circumstances, challenges and opportunities of the twenty-first century.

The biological dimension should therefore be one of the three dimensions of nutrition science. The other two dimensions are social and environmental.

## **2 Personal, population and planetary health**

The food, agriculture and nutrition sciences were originally devised in the mid-nineteenth century in Europe, notably by Justus von Liebig at the University of Giessen in Germany, where our meeting has been held.

The general social, economic and political context of the science at that time was one of industrial and other material expansion, and so of human, mechanical and technological growth and power, and the consequent exploitation of human, living and physical resources. This was at a time when the global human population was far less numerous and less long-lived than it is now. Further, until relatively recently it has

generally been assumed that the world's living and physical resources were inexhaustible.

Correspondingly, application of the principles that have explicitly or implicitly governed nutrition science has created food systems that have greatly contributed to the six-fold increase of the global human population in the last 150 years. During this time non-renewable energy use, material consumption and waste generation have increased enormously. This has resulted in the depletion of many living and physical resources and changes to ecosystems, and also has heightened the contrast between and within rich and poor regions and countries in access to material and other resources.

For these and other reasons, the human species has now moved from a time in history when the science of nutrition, and food and nutrition policy, has been principally concerned with personal and population health and with the exploitation, production and consumption of food and associated resources, to a new period. Now all relevant sciences, including that of nutrition, should and will be principally concerned with the cultivation, conservation and sustenance of human, living and physical resources all together; and so with the health of the biosphere.

### **3 Food systems and nutrition science**

Nutrition science needs to incorporate comprehensive understanding of food systems. These shape and are shaped by biological, social and environmental relationships and interactions. How food is grown, processed, distributed, sold, prepared, cooked and consumed is crucial to its quality and nature, and to its effect on well-being and health, society and the environment.

In the twentieth century, food production was transformed by heavy farm machinery and industrial chemistry, and now perhaps also will be by biotechnology. Food processing, including refrigeration, has enabled the supply of a wide range of foods across seasons and continents. Food manufacturing, retailing and distribution are now increasingly concentrated in fewer hands. Traditional cuisines are being replaced by new eating patterns framed by new technologies, ways of living and economic structures.

Nutrition science can and should engage with the development of technologies and with their impact on food systems. These profoundly affect the relationship between food and the health of people, populations and the planet, and will continue to do so.

These are additional reasons why it is time to reformulate nutrition science to include social and environmental as well as biological dimensions.

### **4 The general challenges of this century**

The world is now experiencing a general period of accelerating social, technological and environmental changes. Many of these changes are interrelated.

Nutritional status and resultant human health at all levels, from individual and communal to national and global, are affected by these unprecedented changes. Nutrition science has the responsibility and the ability to make a difference for the better.

This twenty-first century in many respects shows prospects of opportunity and prosperity for the minority that enjoys stable entitlements including physical and financial security, adequate, nourishing and safe food, safe water supplies, and good education and health.

The majority is not so fortunate. Most people in the world could in future be better off in some and possibly even most respects than they are now. But they are afflicted and threatened by interrelated deprivations that make social and individual life difficult and sometimes impossible. These include loss of amenities and skills; loss of traditional farming and food cultures; loss of land, property and independence; vulnerability to unemployment, dislocation, and other impoverishments; precipitate urbanisation; social, economic and political inequities and turmoil; poor governance, and conflicts and wars of many types.

Many planetary environmental indicators are now deteriorating. These include global climate change and the persistent depletion of stratospheric ozone; the depletion and degradation of topsoil; the accelerated loss of species and of fresh water and sources of energy; and increased use of and persistence of many chemical pollutants. Recent and current modes of food production have made major contributions to such adverse changes.

If these environmental changes are not arrested, the conditions of the natural world will deteriorate for future generations. The extraordinary significance of these changes is that, for the first time in human experience, the overall size and the economic activity of humankind exceed the capacity of the planet to supply, replenish and absorb. The biocapacity of the natural world is now beginning to diminish.

Overall, humankind has enjoyed a century of gains in life expectancy, in average income and in *per capita* food production, although these have been unevenly shared. Currently, however, these indices are looking unstable. Life expectancy has decreased in the past decade in some countries on most continents, and particularly in Sub-Saharan Africa and the former USSR. Income disparities have increased within and between many countries. Global *per capita* grain production, which accounts for around half of total world food energy, has declined since the late 1990s.

These and other changes collectively constitute an imminent global environmental crisis on a scale not previously encountered. Great pressures on various components of the life-support system of our planet are already evident. The resultant environmental and ecosystem changes pose many threats to food systems. To understand and remedy this situation will require extending the scope and collaborative engagement of many sciences, including that of nutrition.

## **5 The nutritional challenges of this century**

Nutrition science is necessarily involved with these general challenges facing the world. Given its application in food and nutrition policy, the science is also faced with other interrelated challenges, also constituting an immense imminent crisis, which are and will remain its central direct concerns.

Global food and nutrition insecurity and inadequacy and even chronic hunger have not changed significantly in the last 20 years. These are made worse among the most deprived populations by increased inequity between rich and impoverished nations and populations, most especially in areas of conflict and disaster.

General and specific nutritional deficiencies increase vulnerability to infectious diseases, especially in women, infants and children. These infections in turn worsen food and nutrition security. Although improved in some parts of the world, nutritional deficiencies and infectious diseases have worsened in many of the more impoverished regions, nations and communities. Diarrhoeal diseases, HIV/AIDS and tuberculosis are examples of diseases crucially affected by nutritional status.

New epidemics of obesity, diabetes and other chronic diseases, including cardiovascular and cerebrovascular diseases, bone disease and cancers of various sites, are also now afflicting middle- and low-income countries, populations and communities. These diseases, all of which are related to nutrition, impose an enormous burden on healthcare systems.

Nutrition science can address these challenges; but can do so successfully only by means of integrated biological, social and environmental approaches. These are also essential if nutrition science is to play its part in addressing the general challenges that now face the human species.

## 6 General principles

All sciences and all organised human activities are and should be guided by general principles. These should enable information and evidence to be translated into relevant, useful, sustainable and beneficial policies and programmes.

The overall principles that should guide nutrition science are ethical in nature. Its principles should also be guided by the philosophies of co-responsibility and sustainability, by the life-course and human rights approaches, and by understanding of evolution, history and ecology.

## 7 Definition and purpose

Nutrition science is defined as the study of food systems, foods and drinks, and their nutrients and other constituents; and of their interactions within and between all relevant biological, social and environmental systems.

The purpose of nutrition science is to contribute to a world in which present and future generations fulfil their human potential, live in the best of health, and develop, sustain and enjoy an increasingly diverse human, living and physical environment.

Nutrition science should be the basis for food and nutrition policies. These should be designed to identify, create, conserve and protect rational, sustainable and equitable communal, national and global food systems, in order to sustain the health, well-being and integrity of humankind and also that of the living and physical worlds.

## 8 Conclusion

There remains much work to be done in the biological dimension of nutrition science. Much other important work now has to be carried out also in the social and environmental dimensions: this will require a broad, integrated approach.

This Declaration emphasises that the most relevant and urgent work to be done by professionals working in nutrition science and in food and nutrition policy is in its three biological, social and environmental dimensions all together.

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