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Part 1
Principles

Part 1 of this special issue of *Public Health Nutrition* includes two papers. The first introduces *The New Nutrition Science project*. It outlines the achievements of nutrition science, identifies its current alternative directions, confronts some of the challenges it now faces, and proposes that the time has come to give the science a new conceptual framework. This is to say, principles, a definition and dimensions, appropriate for this new century.

Challenges

We are now living in the midst of a series of vast technological, economic, political, social and environmental developments and changes, some auspicious, some ominous. This is not news. Nor is it a new idea that nutrition science is and needs to be involved in these revolutions. The issue that confronts everybody involved with nutrition, which in a real sense means everybody, is: to what extent does nutrition science and food and nutrition policy and practice now need to develop and change?

The papers in this special issue generally agree that this new era of human history does have the most profound implications for nutrition science and food and nutrition policy and practice. The electronic and the genomic revolutions, economic globalisation, the widening of inequities between and within regions and countries, and the accelerated depletion of living and natural resources, are examples of interrelated phenomena all of which affect and are affected by nutrition, immediately or in perhaps less obvious ways.

Closer to the normal profession of the science, the sudden increase in the last two decades of rates of childhood obesity and early-life diabetes, while rates of global food and nutrition insecurity and inadequacy and even chronic hunger have not greatly changed, is a double burden that for most countries in the world is politically, economically and socially intolerable. This obviously is a challenge to all involved with nutrition. To paraphrase Rudolf Virchow, a founding father of public health, epidemics are great warning signs against which the progress of civilisations may be judged. Nutrition as now conventionally constituted cannot make much difference to these vast nutritional and epidemiological shifts, because their social and environmental determinants are outside its scope.

To give examples cited later: can it be right to recommend that populations consume more fish, when ocean fish stocks are becoming depleted possibly even beyond recovery? What is the point of celebrating the benefits of traditional Asian cuisine, when the Chinese authorities are planning to shift 500 million people from the countryside into cities? What value can nutrigenomics be except for the very rich, in a world where most people do not have access to or money for anything more than basic health care?

Nutrition information and education may be part of the solution for some, part of the problem for others. The tsunami at the end of 2004 killed over 200 000 people and also destroyed the livelihoods of thousands of communities. This catastrophe was made worse by the destruction of the mangroves that once protected the South East Asian littoral against inundation, that have been ripped out and replaced by tourist centres and also by 'farms' for shrimps, half a million tonnes of which are exported, almost half to the USA, as a low-fat, nourishing delicacy – also enjoyed as the last meal of an unknown number of the tourists who were swept away.

Resolutions

The paradoxes and dissonances confronting all who profess nutrition are sure signs that it is now time for the science to be reformulated. A conclusion of *The Giessen Declaration* (pp. 783–786) is that: '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'. Equally sure signs are the initiatives the profession is already taking, based on the best evidence, in partnership with United Nations and other international agencies, national governments, industry and civil society. These include new understanding of the crucial value of breastfeeding; the life-course approach to the promotion of well-being and prevention of disease; encouragement of benign food technologies; and fully integrated teaching and practice.

Those now concerned with global strategic planning for the twenty-first century generally agree that their overriding shared priority is to protect human, living and physical resources, so as to enable the long-term sustenance of life on Earth. The main finding of the papers in this special issue is that nutrition science is and must be part of this process. This means its identification as a social and environmental as well as a biological

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science, and its definition as a broad, integrative discipline, thus able to identify and address the main issues of the twenty-first century.

Taken all together this will make nutrition a science that incorporates its current 'classical' physiological, biochemical and medical aspects as one of its three dimensions. Its scope is summarised in *The Giessen Declaration* as follows. '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. . .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'.

Authors

The authors wish to emphasise their debt to those thanked below and at the end of the paper. Work such as this can be progressed by individuals. It can be accomplished only by many people whose thoughts and actions are, over a period of time, identified as confluent. And to repeat what is stated in *The Giessen Declaration*, the authors also acknowledge the work already done by institutions, organisations and individuals throughout the world that are already addressing the issues, challenges and resolutions set out here. The success of *The New Nutrition Science project* now depends on its resonance inside and outside the profession of nutrition science.

Process

The first paper that follows, and that on the dimensions and domains of the new nutrition science in Part 3 of this special issue (pp. 787–794), began to be drafted in 2003. This was in response to the invitation of Mark Wahlqvist, President of the International Union of Nutritional Sciences (IUNS) 2001–2005, for the authors jointly to convene a special IUNS Initiative on new directions for the science. This developed to include and involve the other authors in this special issue; the April 2005 Giessen workshop meeting and its participants; and plenary presentations with a linked symposium at the September 2005 18th International Congress in Durban, South Africa. These were made possible by collaboration between IUNS and the World Health Policy Forum and its Patron and President the Baroness Mariuccia Zerilli-Marimò.

The papers were drafted with guidance from a number of the people thanked below, including some of the authors of papers in this special issue, drafts of whose own papers were taken into account. They were then the basis of a presentation and discussion at the Giessen workshop, and were revised in the light of comments, of the agreements recorded in *The Giessen Declaration*, and of the final drafts of the other papers published in this special issue.

In early drafts this paper included work towards what is now the second paper here. This has been completely revised to reflect the agreements made at the Giessen workshop, and its authors, in particular of the sections that state the principles, definition and dimensions of the new nutrition science, are therefore all those who participated in the workshop.

Thanks

The authors thank colleagues, friends and family, for their published work, correspondence, advice and/or discussion over the years, and their witness and example, all of which have influenced the following paper and its companion paper in Part 3 (pp. 787–794). Some have commented on drafts at various stages. The work and influence of those who are now dead, lives on. These include Lenore Arab, Keith Ball, Raquel Bittar de Oliveira, Douglas Black, Paul Boyer, Denis Burkitt, Colin Campbell, Ben Cannon, Supranee Changbumrung, Junshi Chen, Denise Coitinho, Derek Cooper, Michael Crawford, John Cummings, Gustav Dobos, José Dutra de Oliveira, Richard Doll, Hetty Einzig, Marianne Eisinger, Anna Ferro-Luzzi, Rafael Flores, John Garrow, Catherine Geissler, Edward Goldsmith, James Goldsmith, C Gopalan, Barbara Griggs, Jane Grigson, Hartwig de Haen, Andreas Hahn, Kirsten Hartvig, Jo Hautvast, Ken Heaton, Mark Hegsted, Elisabet Helsing, Patrick Holden, David Horrobin, Karl Huth, Alan Jackson, Philip James, Anthony Kafatos, Heinrich Kasper, Ulrich Koepke, Karl von Koerber, David Kritchevsky, Richard Lacey, Tim Lang, Francis Moore Lappé, Michael Latham, Heinrich Laube, Richard Longhurst, David Lubbock, Thomas Maennle, Peter Mansfield, Tom Marchione, Barrie Margetts, Michael Marmot, Reynaldo Martorell, Leonardo Mata, Tony McMichael, Angelika Meyer-Ploeger, Tore Midtvedt, John Milner, Carlos Monteiro, Jerry Morris, Marion Nestle, Kaare Norum, Jim Olson, Gabrielle Palmer, Sushma Palmer, Barry Popkin, John Potter, Pekka Puska, Elisabetta Recine, John Rivers, Nic Rowley, Patti Rundall, David Sanders, Katerina Sarri, Nevin Scrimshaw, Edmund Semler, Hugh Sinclair, David Smith, George Davey Smith, Noel Solomons, Colin Spencer, Jerry Stamler, Robert Suskind, MS Swaminathan, Boyd Swinburn, Dag Thelle, Benjamin Torún, Hugh Trowell, Stewart Truswell, Colin Tudge, Richard Turner, Ricardo Uauy, Flavio Valente, Eugenie Verney, César Victora, Mark Wahlqvist, Caroline Walker, Bernhard Watzl, Walter Willett, Arvid Wretlind, Arthur Wynn, Margaret Wynn, Derek Yach and Walter Yellowlees.

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