

## Preface

**S**ir John Templeton had an enduring interest in the Big Questions of life and what he referred to as ultimate reality – *Do we have free will? Is information the basis of reality? Will machines ever become human?* He was also fascinated by genetics and its potential to improve life for humanity, as it might for the 1 billion people who are currently undernourished. And then there is the predicted increase from 7 to 9 billion people living on this planet by 2050 and the need for even more food produced in a sustainable way – a grand challenge for the best brains and entrepreneurs alike, whether in laboratories, farms, businesses or partnerships.

The Reverend Thomas Malthus was a brilliant mathematician. Writing his famous essay over 200 years ago while at Jesus College, Cambridge he reasoned that population growth would exceed our ability to feed ourselves. He predicted dire social unrest. He could not have foreseen the ingenuity of plant breeders and geneticists who by cross-breeding and selection developed higher-yielding crops which over the years kept pace with the burgeoning increase in global population. Not everyone benefited but the effects of global famine have been averted so far. Year on year, however, the increase in yields is now slowing in the developed world and today's science and technology are even more important for best agronomic practices if we are to find a way to sustainable food production.

*Insights* was commissioned as a key part of a grant awarded by the Templeton Foundation to examine the implementation of biosciences for farming in Africa ([www.B4FA.org](http://www.B4FA.org)). The essays are eclectic and personal, they take the style of

other Templeton essays in being sharply focused, and they are meant to inform decision-makers whether relaxing on long-haul flights, or in deepest deliberation with colleagues. They do not advocate a position. They argue from experience, and offer an authoritative, independent and peer-reviewed brief.

The collection shows that the grand challenge of the *rights of all to food*, highlighted by Phil Bloomer of Oxfam, is being addressed by *Africans for Africa*, as Calestous Juma of Harvard shows in the first essay. Of course, it is a long and difficult way ahead. Africa is a continent of 54 countries where the large majority of farmers are smallholders and a crucial challenge is to improve low crop yields by empowering the farmers themselves. 'Women farmers are the pillars of African agriculture', says Lindiwe Majele Sibanda, CEO of the Food, Agriculture and Natural Resources Policy Analysis Network (FANRPAN), and over two-thirds of all women in Africa are employed in the agricultural sector and produce nearly 90 per cent of food on the continent. They are responsible for growing, selling, buying and preparing food for their families.

African countries are currently among the fastest growing economies in the world and Africa's readiness for transformation is enriched by its natural resources, whether land and minerals, solar radiation in North Africa and the Sahara, the huge potential for food production in the central and eastern regions and Southern Africa, or the unrivalled diversity of environments and people. Essays speak of the crucial role of high-quality seeds for smallholder farmers. How certain African countries became early adopters of new technologies, and how industry responded to new opportunities. How the skills of the business world can be combined with public initiatives for mutual benefit. How world-class research can be developed locally, and train the next generation of African plant breeders. Why African youth holds the key to the future and needs to be inspired about the role of biosciences in African farming.

How water can be delivered to places where it is life-promoting. And a glimpse of the very latest prospects for plant protection.

In the past people were fearful of introducing potatoes into the Western diet for what now seem extraordinary reasons – they were not to be found in the Bible. Recent advances as well as exploitation of plant breeding have also evoked concern and antagonism. So there are insights into simple but profound ethical questions about the new technologies: Are they safe? Are they fair? Are they natural? Are they needed in the face of climate change? Do they need to be protected? Are they designed to benefit the consumer?

We hope these *Insights*, alongside our media fellowship programme and associated activities ([www.B4FA.org](http://www.B4FA.org)), will inspire and inform political and academic leaders, enlighten evidence-based policy-making, and encourage balanced debates in schools, colleges, universities, religious centres, villages and the media. We also hope they will assist measured analysis and communication by all who engage in education, whatever the level.

Above all, we hope you enjoy these reflections and are moved by them – we have been.

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