Director’s Introduction

The 21st century is likely to be one of the most amazing periods in human history. Demographically, economically and environmentally, this era is unique. Although the world’s population is expected to reach 9.1 billion - 34% higher than today - by the middle of this century, population growth is stabilizing and expected to peak before 2050. Additionally, approximately 70% of the world’s populations will be urban - compared to 49% today - and generally with much higher income levels.

As deceleration of population growth is correlated with increased wealth, the resulting higher levels of consumption are expected to place extra pressure on demand for processed foods, meat, dairy and fish, putting further strain on our food supply systems. Our challenge is to produce more food from the same land area, and to ensure that it is distributed as efficiently as possible in a carbon- and water-constrained world. Most importantly, this must be done in a manner that protects, conserves and enhances the natural resource base required to maintain our countryside and wildlife, as well as supporting sustainable agricultural production for the long-term. This is the context in which we must consider climate change, which forms the major theme of this edition of *IBERS Knowledge-based Innovations*.

The spectre of climate change has led to considerable scientific discussion, public debate and uncertainty, as well as raising political awareness worldwide. It is a subject that can not be ignored, since it brings both challenges and opportunities for societies at all stages of development. Indeed, a recent report by Burney et al. has shown that advances in agriculture during the latter part of the 20th century have not only helped to feed the world but have also assisted in reducing the release of greenhouse gases into the atmosphere. Mitigation options for reducing greenhouse gas emissions from livestock systems are described by Jamie Newbold and colleagues in this volume of *IBERS Knowledge-based Innovations*. The Biosciences, Environmental and Agriculture Alliance (BEAA) between IBERs and the College of Natural Science in Bangor creates a critical mass of researchers addressing the major biological and environmental questions facing the future of sustainable land use. The Climate Change Consortium of Wales (C3W) is an exciting new development and designed to position Wales as a major global player in Climate Science.

Together, these articles provide a “snapshot” of IBERs and Aberystwyth University activities that emphasise our commitment to ensuring that knowledge is translated into action with positive societal benefits. Our world is going through a set of remarkable transitions and we hope that these articles will inform, raise awareness and stimulate discussion.

References