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A Tapestry of Values

Science, Policy and Development in Africa

Is Science Value Free?

The Changing Frontier

Named one of the best books of 2013 by the 'Financial Times', 'Huffington Post' and 'Forbes', this debate-shifting book debunks the myth of the State as a static bureaucratic organization only needed to 'fix' market failures, leaving dynamic entrepreneurship and innovation to the private sector. Case studies ranging from the innovations that make the iPhone so 'smart' to the current developments in clean technology reveal the reality, whereby the private sector only invests after the entrepreneurial State has made the bold, high-risk investments.

Science, the Endless Frontier

In 1945, Vannevar Bush, founder of Raytheon and one-time engineering dean at MIT, delivered a report to the president of the United States that argued for the importance of public support for science, and the importance of science for the future of the nation. The report, *Science: The Endless Frontier*, set America on a path toward strong and well-funded institutions of science, creating an intellectual architecture that still defines scientific endeavor today. In *The Changing Frontier*, Adam B. Jaffe and Benjamin Jones bring together a group of prominent scholars to consider the changes in science and innovation in the ensuing decades. The contributors take on such topics as changes in the organization of scientific research, the

geography of innovation, modes of entrepreneurship, and the structure of research institutions and linkages between science and innovation. An important analysis of where science stands today, *The Changing Frontier* will be invaluable to practitioners and policy makers alike.

The Science of Science Policy

Rev. ed. of: *Tobacco and public health: science and policy*. 2004.

Beyond Technocracy

Marine Protected Areas: Science, Policy and Management addresses a full spectrum of issues relating to Marine Protected Areas (MPAs) not currently available in any other single volume. Chapters are contributed by a wide range of working specialists who examine conceptions and definitions of MPAs, progress on the implementation of worldwide MPAs, policy and legal variations across MPAs, the general importance of coastal communities in implementation, and the future of MPAs. The book constructively elucidates conflicts, issues, approaches and solutions in a way that creates a balanced consideration of the nature of effective policy and management. Those in theory, designation, implementation or management of MPAs, from individuals, marine sector organizations, and university and research center libraries will find it an important work. Provides a much needed 'one stop shop' for information on Marine Protected Areas Presents chapters from a diverse group of contributors, enabling a broad and deep perspective Includes case studies throughout, providing real-life examples and best practice recommendations

Enhancing Science Impact

Through this assessment of creative (climate) communications, readers will understand what works where, when, why and under what conditions.

Peerless Science

Situated in education policy analysis, this book is at the cutting edge of major debates across the social sciences regarding the nature of science, qualitative/quantitative tensions, post-foundational possibilities, and the research/policy nexus. Located between «the aftermath of poststructuralism» and the «new scientism» afoot in neoliberal audit culture, the book posits an engaged social science that is accountable to complexity and the political value of not being so sure. Its insistence is to put deconstruction to work in the midst of messiness, contingency, and ambiguity. The book will be useful in courses on education, feminist policy analysis, and qualitative research across disciplines.

National Science Policy, H. Con. Res. 666

The role of science in policymaking has gained unprecedented stature in the United States, raising questions about the place of science and scientific expertise in the democratic process. Some scientists have been given considerable epistemic authority in shaping policy on issues of great moral and cultural significance, and the politicizing of these issues has become highly contentious. Since World War II, most philosophers of science have purported the concept that science should be "value-free." In *Science, Policy and the Value-Free Ideal*, Heather E. Douglas argues that such an ideal is neither adequate nor desirable for science. She contends

that the moral responsibilities of scientists require the consideration of values even at the heart of science. She lobbies for a new ideal in which values serve an essential function throughout scientific inquiry, but where the role values play is constrained at key points, thus protecting the integrity and objectivity of science. In this vein, Douglas outlines a system for the application of values to guide scientists through points of uncertainty fraught with moral valence. Following a philosophical analysis of the historical background of science advising and the value-free ideal, Douglas defines how values should-and should not-function in science. She discusses the distinctive direct and indirect roles for values in reasoning, and outlines seven senses of objectivity, showing how each can be employed to determine the reliability of scientific claims. Douglas then uses these philosophical insights to clarify the distinction between junk science and sound science to be used in policymaking. In conclusion, she calls for greater openness on the values utilized in policymaking, and more public participation in the policymaking process, by suggesting various models for effective use of both the public and experts in key risk assessments.

Value-free Science?

Sustainability challenges blur the boundaries between academic disciplines, between research, policy and practice, and between states, markets and society. What do exemplary scientists and organisations do to bridge the gaps between these groups and help their research to make the greatest impact? How do they do it? And how can their best practices be adapted for a diverse range of specific sustainability challenges? *Enhancing Science Impact: Bridging Research, Policy and Practice for Sustainability* addresses these questions in an accessible and engaging way. It provides principles explaining how research programs can work more effectively across the boundaries between science, society and decision-making by building social and institutional networks. The book suggests useful ways of thinking about a diverse range of problems and then offers five approaches to help embed science in sustainability governance. It will be an indispensable guide for researcher leaders, science program managers and science policy advisers interested in ensuring that applied research can meaningfully contribute to sustainability outcomes.

Science in Democracy

An introduction to the climate-change debate for non-specialists.

National Science Policy, H. Con. Res. 666, Hearings Before the Subcommittee on Science, Research and Development⁹¹⁻², July 7, 8, 21, 22, 23, 28, 29; August 4, 5, 11, 12, 13; September 15, 16, and 17, 1970

Exploring the role of values in scientific inquiry, Hugh Lacey examines the nature and meaning of values, and looks at challenges to the view, posed by postmodernists, feminists, radical ecologists, Third-World advocates and religious fundamentalists, that science is value free. He also focuses on discussions of 'development', especially in Third World countries. This paperback edition includes a new preface.

Acceptable Evidence

Provides an in-depth look at science, policy and management in the water sector across the globe Sustainable water management is an increasingly complex challenge and policy priority

facing global society. This book examines how governments, municipalities, corporations, and individuals find sustainable water management pathways across competing priorities of water for ecosystems, food, energy, economic growth and human consumption. It looks at the current politics and economics behind the management of our freshwater ecosystems and infrastructure and offers insightful essays that help stimulate more intense and informed debate about the subject and its need for local and international cooperation. This book celebrates the 15-year anniversary of Oxford University's MSc course in Water Science, Policy and Management. Edited and written by some of the leading minds in the field, writing alongside alumni from the course, *Water Science, Policy and Management: A Global Challenge* offers in-depth chapters in three parts: Science; Policy; and Management. Topics cover: hydroclimatic extremes and climate change; the past, present, and future of groundwater resources; water quality modelling, monitoring, and management; and challenges for freshwater ecosystems. The book presents critical views on the monitoring and modelling of hydrological processes; the rural water policy in Africa and Asia; the political economy of wastewater in Europe; drought policy management and water allocation. It also examines the financing of water infrastructure; the value of wastewater; water resource planning; sustainable urban water supply and the human right to water. Features perspectives from some of the world's leading experts on water policy and management Identifies and addresses current and future water sector challenges Charts water policy trends across a rapidly evolving set of challenges in a variety of global areas Covers the reallocation of water; policy process of risk management; the future of the world's water under global environmental change; and more *Water Science, Policy and Management: A Global Challenge* is an essential book for policy makers and government agencies involved in water management, and for undergraduate and postgraduate students studying water science, governance, and policy.

Views on Science Policy of the American Nobel Laureates for 1981

The idea that science is or should be value-free, and that values are or should be formed independently of science, has been under fire by philosophers of science for decades. *Science and Moral Imagination* directly challenges the idea that science and values cannot and should not influence each other. Matthew J. Brown argues that science and values mutually influence and implicate one another, that the influence of values on science is pervasive and must be responsibly managed, and that science can and should have an influence on our values. This interplay, he explains, must be guided by accounts of scientific inquiry and value judgment that are sensitive to the complexities of their interactions. Brown presents scientific inquiry and value judgment as types of problem-solving practices and provides a new framework for thinking about how we might ethically evaluate episodes and decisions in science, while offering guidance for scientific practitioners and institutions about how they can incorporate value judgments into their work. His framework, dubbed "the ideal of moral imagination," emphasizes the role of imagination in value judgment and the positive role that value judgment plays in science.

Creative (Climate) Communications

Proctor lucidly demonstrates how value-neutrality is a reaction to larger political developments, including the use of science by government and industry, the specialization of professional disciplines, and the efforts to stifle intellectual freedoms or to politicize the world of the academy.

Science for Policy Handbook

This book examines the structure and operation of peer review as a family of quality control mechanisms and looks at the burdens placed on the various forms of peer review. Assuming that peer review is central to the functioning of U.S. science policy, Chubin and Hackett explore the symbolic and practical value of peer review in the making, implementing, and analysis of this policy.

Science and Technology Governance and Ethics

Conventional wisdom has it that the sciences, properly pursued, constitute a pure, value-free method of obtaining knowledge about the natural world. In light of the social and normative dimensions of many scientific debates, Helen Longino finds that general accounts of scientific methodology cannot support this common belief. Focusing on the notion of evidence, the author argues that a methodology powerful enough to account for theories of any scope and depth is incapable of ruling out the influence of social and cultural values in the very structuring of knowledge. The objectivity of scientific inquiry can nevertheless be maintained, she proposes, by understanding scientific inquiry as a social rather than an individual process. Seeking to open a dialogue between methodologists and social critics of the sciences, Longino develops this concept of "contextual empiricism" in an analysis of research programs that have drawn criticism from feminists. Examining theories of human evolution and of prenatal hormonal determination of "gender-role" behavior, of sex differences in cognition, and of sexual orientation, the author shows how assumptions laden with social values affect the description, presentation, and interpretation of data. In particular, Longino argues that research on the hormonal basis of "sex-differentiated behavior" involves assumptions not only about gender relations but also about human action and agency. She concludes with a discussion of the relation between science, values, and ideology, based on the work of Habermas, Foucault, Keller, and Haraway.

Tobacco

The role of values in scientific research has become an important topic of discussion in both scholarly and popular debates. Pundits across the political spectrum worry that research on topics like climate change, evolutionary theory, vaccine safety, and genetically modified foods has become overly politicized. At the same time, it is clear that values play an important role in science by limiting unethical forms of research and by deciding what areas of research have the greatest relevance for society. Deciding how to distinguish legitimate and illegitimate influences of values in scientific research is a matter of vital importance. Recently, philosophers of science have written a great deal on this topic, but most of their work has been directed toward a scholarly audience. This book makes the contemporary philosophical literature on science and values accessible to a wide readership. It examines case studies from a variety of research areas, including climate science, anthropology, chemical risk assessment, ecology, neurobiology, biomedical research, and agriculture. These cases show that values have necessary roles to play in identifying research topics, choosing research questions, determining the aims of inquiry, responding to uncertainty, and deciding how to communicate information. Kevin Elliott focuses not just on describing roles for values but also on determining when their influences are actually appropriate. He emphasizes several conditions for incorporating values in a legitimate fashion, and highlights multiple strategies for fostering engagement between stakeholders so that value influences can be subjected to

Careful and critical scrutiny.

Science, Information, and Policy Interface for Effective Coastal and Ocean Management

The role of science in policymaking has gained unprecedented stature in the United States, raising questions about the place of science and scientific expertise in the democratic process. Some scientists have been given considerable epistemic authority in shaping policy on issues of great moral and cultural significance, and the politicizing of these issues has become highly contentious. Since World War II, most philosophers of science have purported the concept that science should be "value-free." In *Science, Policy and the Value-Free Ideal*, Heather E. Douglas argues that such an ideal is neither adequate nor desirable for science. She contends that the moral responsibilities of scientists require the consideration of values even at the heart of science. She lobbies for a new ideal in which values serve an essential function throughout scientific inquiry, but where the role values play is constrained at key points, thus protecting the integrity and objectivity of science. In this vein, Douglas outlines a system for the application of values to guide scientists through points of uncertainty fraught with moral valence. Following a philosophical analysis of the historical background of science advising and the value-free ideal, Douglas defines how values should-and should not-function in science. She discusses the distinctive direct and indirect roles for values in reasoning, and outlines seven senses of objectivity, showing how each can be employed to determine the reliability of scientific claims. Douglas then uses these philosophical insights to clarify the distinction between junk science and sound science to be used in policymaking. In conclusion, she calls for greater openness on the values utilized in policymaking, and more public participation in the policymaking process, by suggesting various models for effective use of both the public and experts in key risk assessments.

Communicating Science Effectively

An argument that draws on canonical and contemporary thinkers in political theory and science studies--from Machiavelli to Latour--for insights on bringing scientific expertise into representative democracy.

Science and Moral Imagination

Citizen science, the active participation of the public in scientific research projects, is a rapidly expanding field in open science and open innovation. It provides an integrated model of public knowledge production and engagement with science. As a growing worldwide phenomenon, it is invigorated by evolving new technologies that connect people easily and effectively with the scientific community. Catalysed by citizens' wishes to be actively involved in scientific processes, as a result of recent societal trends, it also offers contributions to the rise in tertiary education. In addition, citizen science provides a valuable tool for citizens to play a more active role in sustainable development. This book identifies and explains the role of citizen science within innovation in science and society, and as a vibrant and productive science-policy interface. The scope of this volume is global, geared towards identifying solutions and lessons to be applied across science, practice and policy. The chapters consider the role of citizen science in the context of the wider agenda of open science and open innovation, and discuss progress towards responsible research and innovation, two of the most critical aspects of science today.

Science, Values, and Objectivity

The public is generally enthusiastic about the latest science and technology, but sometimes research threatens the physical safety or ethical norms of society. When this happens, scientists and engineers can find themselves unprepared in the midst of an intense science policy debate. In the absence of convincing evidence, technological optimists and skeptics struggle to find common values on which to build consensus. The best way to avoid these situations is to sidestep the instigating controversy by using a broad risk-benefit assessment as a risk exploration tool to help scientists and engineers design experiments and technologies that accomplish intended goals while avoiding physical or moral dangers. *Dangerous Science* explores the intersection of science policy and risk analysis to detail failures in current science policy practices and what can be done to help minimize the negative impacts of science and technology on society.

Marine Protected Areas

An important goal of environmental research is to inform policy and decision making. However, environmental experts working at the interface between science, policy and society face complex challenges, including how to identify sources of disagreement over environmental issues, communicate uncertainties and limitations of knowledge, and tackle controversial topics such as genetic modification and the use of biofuels. This book discusses the problems environmental experts encounter in the interaction between knowledge, society, and policy on both a practical and conceptual level. Key findings from social science research are illustrated with a range of case studies, from fisheries to fracking. The book offers guidance on how to tackle these challenges, equipping readers with tools to better understand the diversity of environmental knowledge and its role in complex environmental issues. Written by leading natural and social scientists, this text provides an essential resource for students, scientists and professionals working at the science-policy interface.

Science Policy Up Close

Science for Policy Handbook is aimed at improving the use of science and evidence to increase the impact of knowledge on policy. The print version of the book is based on an open access version, available on Elsevier's ScienceDirect platform. The Joint Research Centre (JRC) is the European Commission's science and knowledge service. The JRC's position as both a respected research organization and a leading practitioner at the science/policy interface puts it in a key position, via the Handbook, to be able to help provide an overview of this interface. The book will put together in one training, awareness-raising and capacity-building resources for researchers and for policymakers. The Handbook will bring scientifically rigorous advice, referenced and evidence-based to the highest possible extent, curated with a practical, user-focused approach. It will build upon JRC's institutional memory of the lessons learnt in using scientific evidence and advising policymakers. It will be directed to scientists and policymakers. The book is based on a larger body of work in the field of science-policy interaction, conducted by the JRC. Key examples include: Highlights from a political conference 'EU4Facts', focused on the relations of science and policy Conceptualisation of skills for practitioners at the science-policy interface, needed for effective evidence-informed policymaking Training researchers and policymakers on how to bring science and policy closer together In terms of themes, the Handbook identifies key problems underlying the current 'post-fact' context of the policy and political worlds, and proposes various solutions (new types of

evidence, scientific methods, skills, etc.). Covers the vital area of science and policy making
Includes contributions from leading commentators from the JRC/European Commission
Conceptualisation of skills for practitioners at the science-policy interface, needed for effective
evidence-informed policymaking

Engaging Science Policy

In a career that included Presidential Science Advisor to George W. Bush, John Marburger stood on the front line of battles that pulled science deep into the political arena. Science controversies, he discovered, are never just about science. As his reflections show, science can no longer be shielded from public scrutiny and government supervision.

The Public Value of Science

Toward a Science Policy for the United States

Space exploration, especially the recent push for the commercialization and militarization of space, is attracting increased attention not only from the wider public and the private sector but also from scholars in a wide range of disciplines. At this moment of uncertainty about the future direction of national spaceflight programs, *The Value of Science in Space Exploration* defends the idea, often overlooked, that the scientific understanding of the Solar System is both intrinsically and instrumentally valuable. Drawing on research from the physical sciences, social sciences, and the humanities, James S.J. Schwartz argues further that there is truly a compelling obligation to improve upon our scientific understanding—including our understanding of space environments—and that there exists a corresponding duty to engage in the scientific exploration of the Solar System. After outlining the underpinning epistemological debates, Schwartz tackles how this obligation affects the way we should approach some of the major questions of contemporary space science and policy: Is there a need for environmental preservation in space? Should humans try to establish settlements on the Moon, Mars, or elsewhere in the Solar System, and if so, how? In answering these questions, Schwartz parleys with recent work in science policy and social philosophy of science to characterize the instrumental value of scientific research, identifying space research as a particularly effective generator of new knowledge. Additionally, whereas planetary protection policies are currently employed to prevent biological contamination only of sites of interest in the search for extraterrestrial life, Schwartz contends that all sites of interest to space science ought to be protected. Meanwhile, both space resource exploitation, such as lunar or asteroid mining, and human space settlement would result in extensive disruption or destruction of pristine space environments. The overall ethical value of these environments in the production of new knowledge and understanding is greater than their value as commercial or real commodities, and thus confirms that the exploitation and settlement of space should be avoided until the scientific community develops an adequate understanding of these environments. At a time when it is particularly pertinent to consider the ways in which space exploration might help solve some of the world's ethical and resource-driven concerns, *The Value of Science in Space Exploration* is a thought-provoking and much-needed examination into the world of space.

Dangerous Science

Basic scientific research and technological development have had an enormous impact on innovation, economic growth, and social well-being. Yet science policy debates have long been dominated by advocates for particular scientific fields or missions. In the absence of a deeper understanding of the changing framework in which innovation occurs, policymakers cannot predict how best to make and manage investments to exploit our most promising and important opportunities. Since 2005, a science of science policy has developed rapidly in response to policymakers' increased demands for better tools and the social sciences' capacity to provide them. *The Science of Science Policy: A Handbook* brings together some of the best and brightest minds working in science policy to explore the foundations of an evidence-based platform for the field. The contributions in this book provide an overview of the current state of the science of science policy from three angles: theoretical, empirical, and policy in practice. They offer perspectives from the broader social science, behavioral science, and policy communities on the fascinating challenges and prospects in this evolving arena. Drawing on domestic and international experiences, the text delivers insights about the critical questions that create a demand for a science of science policy.

The Entrepreneurial State

This book analyzes the possibilities for effective global governance of science in Europe, India and China. Authors from the three regions join forces to explore how ethical concerns over new technologies can be incorporated into global science and technology policies. The first chapter introduces the topic, offering a global perspective on embedding ethics in science and technology policy. Chapter Two compares the institutionalization of ethical debates in science, technology and innovation policy in three important regions: Europe, India and China. The third chapter explores public perceptions of science and technology in these same three regions. Chapter Four discusses public engagement in the governance of science and technology, and Chapter Five reviews science and technology governance and European values. The sixth chapter describes and analyzes values demonstrated in the constitution of the People's Republic of China. Chapter Seven describes emerging evidence from India on the uses of science and technology for socio-economic development, and the quest for inclusive growth. In Chapter Eight, the authors propose a comparative framework for studying global ethics in science and technology. The following three chapters offer case studies and analysis of three emerging industries in India, China and Europe: new food technologies, nanotechnology and synthetic biology. Chapter 12 gathers all these threads for a comprehensive discussion on incorporating ethics into science and technology policy. The analysis is undertaken against the backdrop of different value systems and varying levels of public perception of risks and benefits. The book introduces a common analytical framework for the comparative discussion of ethics at the international level. The authors offer policy recommendations for effective collaboration among the three regions, to promote responsible governance in science and technology and a common analytical perspective in ethics.

Science as Social Knowledge

Discussions of science and values in risk management have largely focused on how values enter into arguments about risks, that is, issues of acceptable risk. Instead this volume concentrates on how values enter into collecting, interpreting, communicating, and evaluating the evidence of risks, that is, issues of the acceptability of evidence of risk. By focusing on acceptable evidence, this volume avoids two barriers to progress. One barrier assumes that evidence of risk is largely a matter of objective scientific data and therefore uncontroversial. The other assumes that evidence of risk, being "just" a matter of values, is not amenable to

reasoned critique. Denying both extremes, this volume argues for a more constructive conclusion: understanding the interrelations of scientific and value issues enables a critical scrutiny of risk assessments and better public deliberation about social choices. The contributors, distinguished philosophers, policy analysts, and natural and social scientists, analyze environmental and medical controversies, and assumptions underlying views about risk assessment and the scientific and statistical models used in risk management.

Science, Policy, and the Value-Free Ideal

Collection of essays that identify the values crucial to science, distinguish some of the criteria that can be used for value identification, and elaborate the conditions for warranting certain values as necessary or central to scientific research.

Citizen Science

This book provides a timely analysis of the role that information-particularly scientific information-plays in the policy-making and decision-making processes in coastal and ocean management. It includes contributions from global experts in marine environmental science, marine policy, fisheries, public policy and administration, resource management

Using Science as Evidence in Public Policy

By investigating the re-emergence of intellectual, moral, and civic virtues in the practice and teaching of science, this text challenges the increasing professionalization of science; questions the view of scientific knowledge as objective; and highlights the relationship between democracy and science. Written by a range of experts in science, the history of science, education and philosophy, the text establishes the historical relationship between natural philosophy and the Aristotelian virtues before moving to the challenges that the relationship faces, with the emergence, and increasing hegemony, brought about by the professionalization of science. Exploring how virtues relate to citizenship, technology, and politics, the chapters in this work illustrate the ways in which virtues are integral to understanding the values and limitations of science, and its role in informing democratic engagement. The text also demonstrates how the guiding virtues of scientific inquiry can be communicated in the classroom to the benefit of both individuals and wider societies. Scholars in the fields of Philosophy of Science, Ethics and Philosophy of Education, as well as Science Education, will find this book to be highly useful.

The Science and Politics of Global Climate Change

Science and technology are embedded in virtually every aspect of modern life. As a result, people face an increasing need to integrate information from science with their personal values and other considerations as they make important life decisions about medical care, the safety of foods, what to do about climate change, and many other issues. Communicating science effectively, however, is a complex task and an acquired skill. Moreover, the approaches to communicating science that will be most effective for specific audiences and circumstances are not obvious. Fortunately, there is an expanding science base from diverse disciplines that can support science communicators in making these determinations. Communicating Science Effectively offers a research agenda for science communicators and researchers seeking to apply this research and fill gaps in knowledge about how to communicate effectively about

science, focusing in particular on issues that are contentious in the public sphere. To inform this research agenda, this publication identifies important influences – psychological, economic, political, social, cultural, and media-related – on how science related to such issues is understood, perceived, and used.

Science, Policy, and the Value-Free Ideal

"Will the ordinary man become a scientist? Bucchi exposes the inadequacy of the 'technocratic model' but also the weaknesses of contemporary bioethics when facing the increasing dilemmas posed by science and technology to contemporary society." -Il Corriere della Sera [Italian leading newspaper] "Bucchi provides a clear, rigorous and accessible discussion – often enriched by a subtle irony – of complex and ambiguous issues, showing that science and innovation are not neutral terrains, but rather among the key conflictual contexts in which contemporary social and political changes take place." -Italian Review of Sociology "A dense but accessible book Bucchi acutely describes the shortcomings of the technocratic and ethical responses to the contemporary dilemmas of science and technology." -Italian Edition of the New York Review of Books Nuclear energy, stem cell technology, GMOs: the more science advances, the more society seems to resist. But are we really watching a death struggle between opposing forces, as so many would have it? Can today's complex technical policy decisions coincide with the needs of a participatory democracy? Are the two sides even equipped to talk to each other? *Beyond Technocracy: Science, Politics and Citizens* answers these questions with clarity and vision. Drawing upon a broad range of data and events from the United States and Europe, and noting the blurring of the expert/lay divide in the knowledge base, the book argues that these conflicts should not be dismissed as episodic, or the outbursts of irrationality and ignorance, but recognized as a critical opportunity to discuss the future in which we want to live. Massimiano Bucchi's analysis covers the complex realities of post-academic science as he: Explores the widely debated theme of science and democracy across a broad range of technological controversies. Overviews issues raised by the current relationship among scientists, policymakers, business interests, and the public. Dispels stereotypes of the detached scientific community versus the uninformed general public. Examines the role of the media in framing scientific debate. Addresses the question of how to move beyond technocracy to a more fruitful collaboration between scientists and citizens. Offers a bold vision for a future in which the scientific and public spheres regard each other as partners working toward a shared purpose. *Beyond Technocracy: Science, Politics and Citizens* has great value as a postgraduate text for courses in technology and society, political science, and science policy. It will also find an interested audience among scientists, policymakers, managers in the technological sector, and concerned lay readers. "In his brilliant new book, *Beyond Technocracy: Science, Politics and Citizens*, Massimiano Bucchi opens for the reader the Pandora's box of the complex relationship between scientists and citizens in contemporary, democratic societies. With major corporations owning university labs and academic researchers (and their institutions) pocketing millions (literally) from the proceedings of patents resulting from their scientific work, Bucchi analyzes the implications of contrasting drives toward for-profit and open science, private and public science. Without pulling his punches, and without hiding behind easy, popular solutions, Bucchi clearly lays out the choices we face when confronted with a science whose potential societal impact – positive and negative – is becoming ever greater (e.g., nuclear energy, genetically modified foods, genetic engineering). Based on a wealth of empirical evidence and case studies, the book is extremely accessible and well written, making it an ideal introduction to the issues. I would highly recommend it to specialists and non-specialists alike!" -Roberto Franzosi, Professor in Department of Sociology at Emory University

Virtues as Integral to Science Education

Using Science as Evidence in Public Policy encourages scientists to think differently about the use of scientific evidence in policy making. This report investigates why scientific evidence is important to policy making and argues that an extensive body of research on knowledge utilization has not led to any widely accepted explanation of what it means to use science in public policy. Using Science as Evidence in Public Policy identifies the gaps in our understanding and develops a framework for a new field of research to fill those gaps. For social scientists in a number of specialized fields, whether established scholars or Ph.D. students, Using Science as Evidence in Public Policy shows how to bring their expertise to bear on the study of using science to inform public policy. More generally, this report will be of special interest to scientists who want to see their research used in policy making, offering guidance on what is required beyond producing quality research, beyond translating results into more understandable terms, and beyond brokering the results through intermediaries, such as think tanks, lobbyists, and advocacy groups. For administrators and faculty in public policy programs and schools, Using Science as Evidence in Public Policy identifies critical elements of instruction that will better equip graduates to promote the use of science in policy making.

Environmental Expertise

Water Science, Policy and Management

Since gaining political independence in the 1950s, science has rapidly become a prerequisite for national development within many African nations. Supported by international agencies, such as UNESCO, initiatives were taken to direct Africa on the road of scientific development, enabling contributions to world science and significant progress in many specific research areas. However, from a developmental perspective there remains the question of how science influences national development plans and strategies. How far are science policies integrated into the national development plans? What potential and challenges do science and technology pose for Africa and its prospects for wider development? Offering a comprehensive historical and empirical study of science in both colonial and post-colonial Africa, R. Sooryamoorthy brings to light the connections between science, policy and development in African nations. Focusing on understanding the widening gap in science and technology between developed and developing regions, and the integration (or lack of) with national development strategies, this study provides important insights into the potential opportunities and challenges facing Africa in the areas of science.

The Value of Science in Space Exploration

This influential report described science as "a largely unexplored hinterland" that would provide the "essential key" to the economic prosperity of the post World War II years.

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