

China and Climate Change: From Copenhagen to Cancun

by Paul G. Harris

Paul G. Harris is Chair Professor of Global and Environmental Studies, Head of the Department of Social Sciences, and Director of the Social and Policy Research Unit, Hong Kong Institute of Education.

There was a palpable sense of expectation around the world that the December 2009 Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC) held in Copenhagen, Denmark, would result in a binding agreement among governments to substantially reduce pollution-causing climate change. In contrast to that expectation, the outcome of the conference was little more than voluntary agreement on principles—albeit important ones, in the form of the Copenhagen Accord—and general consensus that a binding agreement might be achievable in time for the next Conference of the Parties in Cancun, Mexico, in December 2010. Many observers, and indeed some government officials in the West, blamed China for the failure of the Copenhagen meeting, in particular for China's opposition to a binding agreement to reduce global emissions of greenhouse gases (GHGs) by 50% by mid-century.¹ China was especially strident in opposing any binding cuts in GHGs for developing countries, although it pledged voluntary efforts to improve its own energy efficiency. Whether China is to blame for the outcome at Copenhagen remains subject to debate, and of course the Chinese strongly deny the accusation.² What is beyond question is that China is now the largest national source of pollutants causing global warming, thus making its policies and actions central to efforts by governments, industry, and individuals to limit and cope with climate change.

China is taking steps domestically that will limit its aggregate GHG emissions over business-as-usual scenarios. However, these limitations are far too little compared to the scale of global cuts that will be needed to avert catastrophic climate change. Developed countries have pushed China to be more aggressive in limiting its emissions, and to submit to external auditing of the implementation of those limits, ideally to be followed by measurable reductions. However, these kinds of demands run up against China's profound sense of grievance generally vis-à-vis the outside world, and more specifically are counter to its belief that the developed countries are to

blame for climate change. China's diplomatic position does not reflect its new status as the world's largest polluter, nor does it account for the hundreds of millions of newly affluent consumers in China's cities who are consuming and polluting at near-Western levels. China's policies on climate change are those of a relatively poor developing country that wishes to focus intently on domestic economic growth and that sees the developed world, particularly the West, as responsible for addressing climate change. China expects wealthy countries to take robust action to limit their own GHG emissions, to reimburse China for the extra cost of more sustainable development practices that it adopts beyond its own domestic plans, and to compensate developing countries for the suffering that will accrue from historical atmospheric pollution.

This Article briefly examines China's climate change policies, particularly with regard to ongoing international negotiations in the context of the UNFCCC. It describes China's GHG emissions, explains some fundamental objectives underlying China's climate change policies, introduces some implications related to climate justice, and attempts to predict Chinese policies for the next Conference of the Parties in Cancun.

I. China's Emissions

In 2006, China overtook the United States to become the largest national source of carbon dioxide (CO₂) emissions.³ It now accounts for one-quarter of carbon emissions globally, and in 2008, two-thirds of the total global increase in emissions came from China alone.⁴ While China's average per capita emissions remain far below those of the United States, in that same year, its per capita emissions surpassed the global average, placing emissions well above those of most developing countries.⁵ Per capita emissions are levelling off in the developed world, but in China, they are increasing rapidly; for example, China's CO₂ emissions are increasing four to six

1. Ed Miliband, *The Road From Copenhagen*, THE GUARDIAN (Dec. 20, 2009), available at <http://www.guardian.co.uk/commentisfree/2009/dec/20/copenhagen-climate-change-accord>.

2. Shi Jiangtao, *Learn From Copenhagen Talks, Official Urges World*, SOUTH CHINA MORNING POST (Mar. 11, 2010), at A6.

3. Press Release, Netherlands Environmental Assessment Agency, China Now No. 1 in CO₂ Emissions; USA in Second Position (2007).

4. Press Release, Netherlands Environmental Assessment Agency, China Contributing Two-Thirds to CO₂ Emissions (2008).

5. THOMAS A. BODEN ET AL., GLOBAL, REGIONAL, AND NATIONAL FOSSIL-FUEL CO₂ EMISSIONS (2009).

times as fast as U.S. emissions.⁶ Despite attempts in China to improve energy efficiency, its CO₂ emissions from fossil fuel use alone increased by over 79% in just the past decade, with most of this coming from the burning of coal.⁷ Indeed, China's coal-fired power sector is the world's largest anthropogenic source of CO₂ emissions.⁸

China's GHG intensity (emissions per unit of economic output) has improved markedly in recent years, but it is nevertheless among the highest globally, above averages for other developing countries, and well above averages in the developed world.⁹ This is driven to a significant degree by use of coal to power the country's export-oriented industries. More generally, the major source of growth in China's emissions is production, although this will change as more Chinese join the global middle class.

In the runup to the Copenhagen conference, China agreed to voluntarily implement a 40-45% reduction in the country's carbon intensity by 2020 (referenced from 2005 emissions). However, from 1991 to 2006, China's total CO₂ emissions doubled even as carbon intensity dropped by 44%.¹⁰ In just the four years up to 2006, demand for energy in China grew more than it had in the preceding 25 years put together.¹¹ Thus, if recent trends in economic growth continue, even with the Chinese government's Copenhagen pledge, the country's total emissions will increase, possibly sharply. Cumulative historical carbon emissions from China are about one-fourth those of the United States, the largest historical polluter of the atmosphere.¹² However, China is expected to overtake the United States in this respect as well by mid-century.¹³ Consequently, bearing in mind China's overall GHG emissions, the world cannot adequately address climate change without China's participation in global cut-backs, something that has always been said about the United States (and which remains true), but which in the case of China is a new phenomenon that has occurred alongside its rapid economic development over the last three decades.

II. Policy Objectives and Drivers

China first became involved in international discussions on climate change in the 1980s when it collaborated with the United States to study the impacts of CO₂ emissions, thus

beginning a process of growing Chinese involvement and interest in climate diplomacy and its impact on international relations, economics, and the environment.¹⁴ China's climate change diplomacy became more proactive in the 1990s when it joined with other developing countries to influence negotiation of the 1992 Framework Convention on Climate and the 1997 Kyoto Protocol. These negotiations affirmed the principle of common but differentiated responsibility of states for climate change. This principle established that the world's developed countries were most responsible for climate change and thus should take the lead in reducing GHG emissions and helping developing countries address the problem. Generally speaking, for China, climate change went from being a scientific issue in the 1980s to being a developmental (and highly politicized) issue by the 1990s, where it remains today.¹⁵ As a developing country, China is not legally required to limit its GHG emissions in any way. It defends this position and, as demonstrated at Copenhagen, has shown few signs of allowing change in successor agreements to the Kyoto Protocol. Nevertheless, it is taking steps domestically to become more energy efficient, in effect limiting what would otherwise be a larger contribution to global warming.

China's policies on climate change, both domestic and international, are officially guided by six principles¹⁶: (1) to address climate change within the broader framework of the country's "national sustainable development strategy"; (2) to follow the principle of common but differentiated responsibility; (3) to address both climate change mitigation and adaptation; (4) to integrate climate change-related policies with programs for "national and social economic development"; (5) to rely on technological advancement for effectively mitigating and adapting to climate change; and (6) to "actively and extensively" participate in international cooperation on climate change. Generally speaking, what comes from these principles is a clear indication that climate change is taken seriously, but also that it does not take priority over China's other national objectives. If climate change mitigation and adaptation can be made consistent with those objectives, China will act forthrightly. If advantages for development and other objectives can be rung from the climate change issue, China will exploit them, e.g., in extracting funding and technology for both economic development and GHG mitigation.

The second of these objectives—common but differentiated responsibility—largely determines how far China is willing to go in meeting the demands of outsiders for greater

6. ASIA SOCIETY & PEW CENTER ON GLOBAL CLIMATE CHANGE, COMMON CHALLENGE: A ROADMAP FOR U.S.-CHINA COOPERATION ON ENERGY AND CLIMATE CHANGE 18 (2009).

7. BODEN ET AL., *supra* note 5.

8. Joanna I. Lewis & Kelly Sims Gallagher, *Energy and Environment in China: Achievements and Enduring Challenges*, in THE GLOBAL ENVIRONMENT: INSTITUTIONS, LAW, AND POLICY 259 (Regina S. Axelrod et al. eds., CQ Press 2011).

9. Pew Center on Global Climate Change, *Climate Change Mitigation Measures in the People's Republic of China*, 1 INTERNATIONAL BRIEF 1 (2007), available at http://www.pewclimate.org/policy_center/international_policy.

10. Lewis & Gallagher, *supra* note 8, at 273.

11. ASIA SOCIETY, *supra* note 6, at 19.

12. Pew Center, *supra* note 9, at 1.

13. W.J. Wouter Botzen et al., *Cumulative CO₂ Emissions: Shifting International Responsibilities for Climate Debt*, 8 CLIMATE POLICY 569-76 (2008).

14. Miriam Schroeder, *The Construction of China's Climate Politics: Transnational NGOs and the Spiral Model of International Relations*, in THE POLITICS OF CLIMATE CHANGE: ENVIRONMENTAL DYNAMICS IN INTERNATIONAL AFFAIRS 51-71 (Paul G. Harris ed., Routledge 2009).

15. Lewis & Gallagher, *supra* note 8, at 269.

16. NATIONAL DEVELOPMENT AND REFORM COMMISSION (NDRC), CHINA'S NATIONAL CLIMATE CHANGE PROGRAMME 24-25 (National Development and Reform Commission 2007).

domestic action, particularly with regard to GHG limitations. It is important not to underestimate the extent to which Chinese officials embrace the principle of common but differentiated responsibility. They interpret it very strictly as requiring that

developed countries take the lead in reducing greenhouse gas emissions as well as providing financial and technical support to developing countries. The first and overriding priorities of developing countries are sustainable development and poverty eradication. The extent to which developing countries will effectively implement their commitments under the [UNFCCC] will depend on the effective implementation by developed countries of their basic commitments.¹⁷

A clear statement on China's minimum position with regard to climate change negotiations and obligations can be derived by simply replacing "developing countries" in this statement of principle with "China."

This leads to the Chinese government's overriding short- and medium-term priority in the context of climate change (and in most other policy contexts): economic growth. To be sure, there are a number of other fundamental concerns underlying China's positions, notably sovereignty and non-interference in internal affairs¹⁸; social stability and regime vitality; propaganda and support for the party and the government; demonstrating leadership among developing countries and challenging the international authority of the United States; environmentally sustainable development as a medium- and long-term objective; and obtaining aid and technology from developed countries.¹⁹ Although China's leaders are increasingly concerned about climate change, both in terms of its impacts on the country and its international political ramifications, the issue "has not surpassed economic development as a policy priority."²⁰

Generally speaking, and despite increasing pressure from the world for China to limit its GHG emissions, the country's climate-related policies are mostly driven by domestic considerations, above all economic development and more specifically economic growth. Economic development is in turn tied to the ruling party's policy objectives, e.g., lifting the Chinese out of poverty and using growing economic strength for national defense and to ensure territorial integrity, and, very fundamentally, the party's apparent assumption that economic growth is essential to regime survival and more generally to political stability.²¹ In particular, according to Daniel Abebe and Jonathan Masur, the regime is focused on developing the western provinces to avoid unrest²²: "The

social and economic disparities between East[ern China] and West[ern China] have made rapid western growth a political imperative for the Chinese Communist Party, which will be loath to sign any agreement that might stunt this growth."²³ Furthermore, even when the central government promulgates environmental policies, they are often not fully implemented due to corruption and mismanagement. Central authorities are no doubt keenly aware of the limitations they face in this respect, explaining their continuing efforts to reduce corruption generally and to make implementation of environmental regulations a measure of cadre performance at local levels.

While China has many domestic policies related to climate change, such as increasingly significant efforts by the central government to encourage energy efficiency and to provide support for alternative energy production,²⁴ those policies are driven by policy objectives other than fighting climate change, such as energy security, technology innovation to enhance economic growth and competitiveness, and profiting from the Kyoto Protocol's Clean Development Mechanism. Put another way, China's climate change policies are only incidentally related to climate change. (Arguably it does not matter from whence the motivation for implementing climate-friendly policies originates. What matters is the effect. However, one might argue that the policies would be far more robust, and more routinely implemented, if they were motivated by an official desire to mitigate global warming and climate change.) This may change as the impacts of climate change to be experienced in China become more immediate, although even then the official calculus may be that economic growth is more desirable given its political and social benefits in the short term and its potential to provide resources to aid adaptation to climate change in the future. In short, the calculus may continue to be that mitigation is more costly for the regime and for the economy than is adaptation. This would help to explain China's focus on adaptation over mitigation in international negotiations over the last decade.

Some scholars argue that the "norm of climate protection [has] become internalized in Chinese politics,"²⁵ while others focus on the extent to which the Chinese government's rhetorical claims to care about environmental issues are not matched by policy implementation, often due to local corruption.²⁶ What is clearer is that China is opposed to outside monitoring of its GHG emissions, an issue that exercised world leaders at the Copenhagen summit. China's policy in this respect is driven firstly by its obsession with sovereignty and its total opposition to "intervention" in its

17. *Id.* at 24.

18. See Zhang Zhihong, *The Forces Behind China's Climate Change Policy: Interests, Sovereignty, and Prestige*, in *GLOBAL WARMING AND EAST ASIA: THE DOMESTIC AND INTERNATIONAL POLITICS OF CLIMATE CHANGE*, 66-85 (Paul G. Harris ed., Routledge 2003).

19. See Yuka Kobayashi, *Navigating Between "Luxury" and Survival Emissions: Tensions in China's Multilateral and Bilateral Climate Change Diplomacy*, in *GLOBAL WARMING AND EAST ASIA: THE DOMESTIC AND INTERNATIONAL POLITICS OF CLIMATE CHANGE*, *id.* at 86-108.

20. Lewis & Gallagher, *supra* note 8, at 269.

21. See SUSAN SHIRK, *CHINA: FRAGILE SUPERPOWER* (2007).

22. Daniel Abebe & Jonathan S. Masur, *International Agreements, Internal Heterogeneity, and Climate Change: The "Two Chinas" Problem*, 50 VA. J. INT'L L.

326-89 (2010).

23. *Id.* at 388.

24. See GOVERNMENT OF CHINA, *CHINA'S POLICIES AND ACTIONS FOR ADDRESSING CLIMATE CHANGE: WHITE PAPER* (2008).

25. Miriam Schroeder, *The Construction of China's Climate Politics: Transnational NGOs and the Spiral Model of International Relations*, in *THE POLITICS OF CLIMATE CHANGE: ENVIRONMENTAL DYNAMICS IN INTERNATIONAL AFFAIRS*, *supra* note 15, at 51-71.

26. Elizabeth Economy, *The Great Leap Backward?*, 86 FOREIGN AFFAIRS 38-59 (2007).

internal affairs,²⁷ but also by concerns that the central government simply cannot guarantee that its pledges will be fully implemented. In short, international policies that could be construed as intervention will be opposed by the Chinese government. China's reticence about allowing outside monitoring of its emissions is also a function of the central government's weak capacity in this respect, exacerbated by the long-standing problem of lack of transparency related to statistics of almost any kind. Thus, the seemingly reasonable demand from the United States and some other countries at Copenhagen for China to agree to monitoring of its emissions targets is partly unreasonable and partly unworkable from the Chinese perspective.

Until very recently China stood alongside developing and very poor countries in international negotiations related to climate change. Indeed, experts have argued that its positions rarely deviate from those of the developing world.²⁸ However, this changed quite dramatically at the Copenhagen conference when China joined forces with a number of large and relatively well-off developing countries—the so-called BASIC states, comprising Brazil, China, India, and South Africa—to refuse binding limitations on these countries' GHG emissions despite pleadings from extremely vulnerable poor countries, especially small-island states, for China to accept GHG limitations that might help mitigate what for them is an existential threat. To this extent, China is no longer a champion of the developing world; like many rich countries, it is now unquestionably a champion of its own national interests regardless of the costs for those countries that are most vulnerable to climate change.

III. Responsibility as an Evolving Policy Driver

The principle of common but differentiated responsibility has become the cornerstone of China's international position on climate change, and served as the fundamental basis of its position at the conference of the Parties in Copenhagen. At the conference, Chinese Premier Wen Jiabao said:

The principle of “common but differentiated responsibilities” [of States] represents the core and bedrock of international cooperation on climate change, and it must never be compromised. . . . Developed countries must take the lead in making deep quantified emission cuts and provide financial and technological support to developing countries. This is an unshirkable moral responsibility as well as a legal obligation that they must fulfill.²⁹

However, while the Chinese government is unlikely to acknowledge it, China's *common* responsibility is on the rise as its overall wealth and level of development increase, in turn increasing its contribution to the problem. Indeed, because China is now the largest national source of atmospheric pollution, on a practical level, no other country is more responsible for the additional impacts from current emissions on other developing countries in the future, and especially the least developed countries with the most vulnerable geographies and communities. Consequently, China's *national* contributions will give rise to demands that it take on more of the “common responsibility” for climate change normally attributed to the developed countries.

What is more, common but differentiated responsibility *of people* is an overlooked but unavoidable factor that will put growing pressure on China's climate change policies, and the international responses to those policies, in the future. Although China's per capita GHG emissions remain well below those of developed countries, the number of affluent people in China has grown substantially in recent decades, meaning that there is, in effect, a “Japan within China” or a “Germany within China” given that the number of people in those and other developed countries number fewer than the newly affluent people in China.³⁰ Comparisons of consumption-based emission statistics and data on national income distribution suggests that per capita emissions of the richest 10% of the people in China (who collectively receive one-third of national income) are well above those of the poorest 10% of Americans, putting these affluent Chinese on par with per capita emissions in some European countries.³¹ These evolving statistics will make it increasingly difficult for China to claim that the principle of common but differentiated responsibility inoculates it—or at least several hundred million of its people—from the moral obligation to take on binding GHG limitations. Thus, there are major practical and normative implications of the expanding number of affluent people in China, meaning that pressure will likely build on China from both the developed world and the least developed countries to agree to a GHG ceiling in the medium term, followed by GHG cuts later in the century.³²

IV. China at Cancun

China's position in international negotiations leading up to the Cancun conference in December 2010 could go in one of three directions. It is likely that the government will dig in its heels (alongside some other large developing countries, such as the BASIC states) and refuse to alter the position it took in Copenhagen. Alternatively, China may surprise analysts by becoming much more proactive in agreeing to limits on its

27. See John Drexhage & Deborah Murphy, *Copenhagen: A Memorable Time for All the Wrong Reasons?*, IISD COMMENTARY, International Institute for Sustainable Development, 3 (2009).

28. See, e.g., Joanna I. Lewis, *China's Strategic Priorities in International Climate Change Negotiations*, 31 WASH. Q. 155-74, 163 (2007-2008); Paul G. Harris & Hongyuan Yu, *Climate Change in Chinese Foreign Policy: Internal and External Responses*, in CLIMATE CHANGE AND FOREIGN POLICY: CASE STUDIES FROM EAST TO WEST 52-67 (Paul G. Harris ed., Routledge 2009).

29. Wen Jiabao, Premier of the State Council of the People's Republic of China, *Build Consensus and Strengthen Cooperation to Advance the Historical Process of Combating Climate Change*, Address at the Copenhagen Climate Change Summit, Copenhagen (Dec. 18, 2009).

30. PAUL G. HARRIS, WORLD ETHICS AND CLIMATE CHANGE: FROM INTERNATIONAL TO GLOBAL JUSTICE 141-46 (2010).

31. Edgar G. Hertwich & Glen P. Peters, *Carbon Footprint of Nations: A Global, Trade-Linked Analysis*, 43 ENVTL. SCI. & TECH. 6414-20 (2009); U.N. Development Program (UNDP), HUMAN DEVELOPMENT REPORT 2009, 195-96 (UNDP 2009).

32. See Harris, *supra* note 30, at 124-29.

GHG emissions. Also possible is something in between, but close to its historic position—reaffirmed so forthrightly at Copenhagen—to refuse binding emissions limitations while gradually agreeing to voluntary emissions measures, perhaps starting with a stronger energy-intensity target (given that the one agreed in the context of Copenhagen lacked ambition) and eventually agreement on a firm date when China's emissions will peak and begin to decline. China probably will not agree to economywide limitations on GHG emissions, but it is likely to agree to limitations within specific programs and projects, especially when those can benefit from deployment of alternative energy sources coming online and already planned. At the same time, China will continue to enact and try to implement policies domestically that move more or less in the direction of GHG limitations, consistent with broader national developmental goals.³³

Those expecting bold moves from Beijing to take on new obligations with regard to climate change must also bear in mind that China will transition to a new leadership in a few years. While the new top leaders have no doubt been decided, there will be jockeying for position among lower level cadres. Offering concessions to the West on climate change is unlikely to be viewed as a sign of strength within the Chinese Communist Party. However much it might be wrong from an environmental perspective to refuse to limit China's GHG emissions, that is precisely what is most likely to happen. What is very clear at this point in time is that the Chinese government is not planning to concede at the Cancun conference to even a cap on the country's emissions, let alone promise any reductions. Indeed, Su Wei, China's top official on climate change matters, said in early 2010 that the country's emissions would have to increase, that the government will continue to be guided by the principle of common but differentiated responsibility, and that "China 'could not and should not' set an upper limit on greenhouse gas emissions."³⁴ Consequently, agreement from China at the Cancun conference to take on new binding obligations to cap or limit—least of all reduce—its GHG emissions, or to submit to independent verification of those emissions, is quite unlikely.³⁵ Bold moves by developed countries toward reducing their own GHG emissions are almost certainly a prerequisite for such a change in Chinese policy in the medium term.

China's climate change policy will be influenced by events in the United States. If a compromise on climate change-related energy legislation can be reached—a likelihood, albeit with many compromises and thus relatively meager U.S. emissions cuts—it is likely that the medium-term outcome will be trade-related measures, i.e., tariffs, by the United States,³⁶ and indeed by other Western countries, to

address China's relatively high emissions per unit of production. If not handled properly, pressure on China from these measures could result in a backlash whereby China actually delays climate-related policies to avoid the appearance of giving in to outside pressure, such as the importance of its historical grievance vis-à-vis the outside world for 20th century intervention in Chinese affairs.

Domestic policies related to climate change (but not directly driven by the problem) are easier to predict. China will continue to become more energy efficient relative to economic output, and new energy-efficient technologies will be adopted insofar as they are consistent with overall development objectives, i.e., the cost-benefit analysis of adopting them is favorable relative to less efficient technologies, and when they bring in additional funding, investment, and access to technology from abroad. In short, China's GHG emissions will not be as high as they might be without conscious efforts by the government and international partners to encourage more environmentally sustainable development domestically. Whether this will be enough to actually bring the increase in China's emissions to a halt anytime soon, and then to start reducing them, is an open question—but this is very unlikely to start happening before the second quarter of the century.

V. Conclusion

The key to action by China to finally cap and then reduce its GHG emissions likely lies, for better or worse, in the actions of other countries. The West must do all that it can to bolster and supplement existing aid and cooperation programs with China intended to help it become more energy efficient. At the same time, Western governments will have to be seen by China to be taking on much more responsibility for past and future climate change, and be seen to be acting accordingly through concrete policies and programs of their own, if there is any hope of convincing China to do more than it intends to do already. Governments and global industry face an uncertain regulatory environment, but smart exporters and all industries will continue to prepare for a low-carbon future, in part to limit their vulnerability to swings in fossil fuel prices and supplies, but also to compete with increasingly innovative and efficient Chinese producers and to be solidly situated for national and international carbon trading that will increase in the second half of this decade and blossom after 2020. The resulting limitations in GHG emissions will not be enough to avert serious impacts of climate change. Consequently, capable national and regional governments, industry, and individuals would do well to "weather proof" themselves for the future and be prepared to share the financial burdens associated with helping the weakest and most vulnerable communities and people cope with the adverse effects of climate change.

One possible future for Chinese policy—a future that could put China in the lead on this issue—would be for China to match its demands for common but differentiated responsibility *among states* with a recognition that require-

33. Cf. Lewis & Gallagher, *supra* note 8, at 273.

34. Xinhua, *China Has "No Intention" of Capping Emissions*, XINHUA NEWS AGENCY, Feb. 25, 2010, available at http://news.xinhuanet.com/english/2010/china/2010-02/25/c_13187687.htm.

35. See Shi Jiangtao, *supra* note 2.

36. See Pew Center on Global Climate Change, *Addressing Competitiveness Issues in Climate Legislation*, 5 CLIMATE POLICY MEMO (2009), available at <http://www.pewclimate.org/acesa/addressing-competitiveness>.

ments for common but differentiated responsibility *among people* require GHG emissions reductions by at least several tens of millions (if not a few hundred million) affluent people in China. This will not happen by the time of the Cancun conference, but it is probably in the cards sometime in the

future. When that time comes, there will be opportunities for those exporting countries and businesses able to cater to a large number of Chinese consumers looking for environmentally sustainable alternatives to current consumption choices.