Asian Public Opinion on Climate Change and Its Implications for Climate Change Policies

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May 4, 2009

Abstract

Climate change has been a focal point in recent environmental public debate and policymaking. Latest polls show virtually unanimous consensus among the global public on the significance of the problem. This paper examines Asian public opinion on key issues of climate change policy in a comparative by comparing the level of public awareness and support for climate change policies in Asian countries with that of other regions as well as within the region. One of the major findings is that Asians are the least willing to bear the costs of climate change mitigation and also the least supportive of tax incentives for alternative energy development. This suggests a great challenge for environmental policymakers and the environmental community in Asia, which is home to some of the largest greenhouse gas emitters and is also perhaps the most vulnerable region to climate change effects.

Prepared for a delivery to the International Conference: ***Environmental Policy: a Multinational Conference on Policy Analysis and Teaching Methods***, Co-Sponsored by the Association for Public Policy Analysis and Management and the KDI School of Public Policy and Management, June 11-13, 2009, Seoul, South Korea

Introduction

Climate change has been a focal point in recent environmental policy debates at both the national and international levels. With the 2007 Nobel Peace Prize award for the Intergovernmental Panel on Climate Change (IPCC) and the former U.S. Vice President, Al Gore, honoring their activism on climate change issues, the visibility of global climate change as a public policy issue skyrocketed among the public and policymakers around the world. Latest polls indeed show strong consensus among the global public on the significance of the climate change problem.

This paper draws a contour of Asian public opinion on climate change based on recent cross-national polls on climate change issues and derives the implications of the current public opinion for climate change policymaking in the region. While Asia is one of the most vulnerable regions to climate change effects at the same time being home to some of the largest emitters of greenhouse gases, little is known about how much Asians are aware of the problem and how supportive they are for domestic and international policies relevant to mitigation of the climate change problem.

Key to this examination of Asian public opinion on climate change is the cross-regional and intra-regional analysis. The cross-regional comparisons allow a greater understanding of the uniqueness of environmental public opinion in the area of climate change in Asian countries. The intra-regional comparisons shed light on significant cross-national differences on public views of climate change policies within the region.

The paper is organized into three sections. The following section discusses the background for this research by explaining why it is particularly important to examine Asian public opinion on climate change. The third section describes the survey datasets and presents the findings in two subsections devoted to a cross-regional and intra-regional analysis, respectively. The final section summarizes the findings and discusses their implications for climate change policy.

Climate Change, Public Opinion, and Asia

Spanning local, national, and international politics, climate change has emerged as a chief driver of public interest in environmental problems. Several noteworthy developments in recent years, including the Kyoto Protocol entering into force in 2005, the Nobel Peace Prize for the IPCC in 2007, and widely televised Earth Hour events in 2008, catapulted the issue of climate change into international policy agenda. As such, it is perhaps the most successful environmental issue that has captured the imagination of the public about global environmental problems and mobilized them for environmental policy actions.

Prominent poll sites such as the *World Public Opinion* (WPO) website managed by the University of Maryland's Program on International Policy Attitudes document a

dramatic surge in public awareness of climate change as well as public support for policies reducing the problems associated with it including global warming. Here are some of the headlines from the WPO website showing such a rise vividly:

> "International Polls Find Robust Global Support for Increased Efforts to Address Climate Change" (December 5, 2007),
> "Developed and Developing Countries Agree: Action Needed on Global Warming" (September 24, 2007),
> "Poll Finds Worldwide Agreement That Climate Change is a Threat" (March 13, 2007),
> "World Publics Willing to Bear Costs of Combating Climate Change" (October 11, 2006),
> "30-Country Poll Finds Worldwide Consensus that Climate Change is a Serious Problem" (April 25, 2006).

For another example, the percentage of survey respondents in the U.S. having or reading about global warming rose from 65% to 89% in the span of ten years (1997-2007) according to a series of CBS Polls. In addition, the proportion of Americans naming global warming/greenhouse effect/climate change as the single biggest environmental problem doubled from 16% in 2006 to 33% in 2007 (Nisbet & Myers 2007). Climate change was also the most mentioned environmental concern in the EU-15 countries (47%) according to the 2004 Special Eurobarometer Survey (Lorenzoni & Pidgeon 2006).

All these recent survey results point to globally rising concern about climate change as one of the biggest environmental challenges facing the world. Yet one troubling fact about previous cross-national surveys on climate change is that they include surprisingly few countries from Asia. The 1992 Gallup *Health of the Planet* (HOP) Survey, viewed as the first cross-national public surveys on the environment, asked a couple of questions on global warming. This survey, however, contained only two Asian countries (Japan and South Korea) among 24 nations (Dunlap, Gallup & Gallup 1993). Another earlier-year cross-national survey containing questions on greenhouse effects is the poll by the *Environics International* in 1999. This survey also included only two Asian countries (India and Japan) among the 27 nations (Brechin 2003).

On the other hand, the well-known *World Values Surveys*, the most comprehensive cross-national survey series, contains far more Asian countries, yet its questions on the environment are limited to very general issues. The 2003 *Asia Barometer* is another cross-national survey containing many Asian countries, yet it covers only general environmental questions. Neither is therefore very useful to gauge Asian public opinion on climate change.

This lack of survey data on public opinion on climate change in Asian countries is quite problematic,[1] given the strategic importance of this region in global climate change policy. As is well-known, Asia is home to some of the largest emitters of greenhouse gases. In 2000, China, India, Japan, South Korea, and Indonesia ranked the second, fourth, fifth, twelfth, and fourteenth in the greenhouse gas emissions (Parker & Blodgett 2008). Notably, China overtook the U.S. in 2006 as the largest producer of CO_2, the chief greenhouse gas. Although this record includes CO_2 production only from the combustion of fossil fuel and excludes other types of greenhouse gases, it has generated great anxiety among environmental activists and policymakers about China's growing role in climate change. And the top ten emitters of CO_2 as of August 2008 include four Asian nations (China, India, Japan, and South Korea).

Furthermore, the economic impact of climate change in Southeast Asia is projected to be much higher than the globally projected cost (Asian Development Bank 2009). The economic cost of climate change including health risks and environmental disasters due to changing climate in this region is estimated to reach 6.7% of gross domestic product by 2100, as compared to the globally projected cost of climate change estimated at 2.6% of GDP per year by the end of this century (Asian Development Bank 2009, Casey 2009).

It is therefore ironical that there is very little known about how people of the world region, seemingly the most vulnerable to climate change effects and weighing in greatly for the implementation of climate change mitigation policies, perceive and think about the issues related to climate change. Understanding public opinion on climate change is not just a matter of finding about the public's level of knowledge and information of climate change as an environmental problem. It is also about estimating public preferences for different courses of policy actions that can potentially alleviate the negative effects of climate change. Given the strategic significance of Asia in global climate change politics and policymaking, one cannot stress enough the importance of understanding how Asians perceive and think about the climate change problem.

Analysis of Asian Public Opinion on Climate Change

This analysis of public opinion on climate changes among Asians utilizes very recent cross-national polls conducted by various institutions such as the Pew Research Center, Chicago Council of Global Affairs (CCGA), and BBC. It largely draws upon the list of polls on climate change issues compiled by the World Public Opinion in late 2007

[1] Japan is an exceptional case in this regard. Like other advanced countries, Japan holds a large reservoir of polls on global warming, most of which are available from the JPOLL database archived at the Roper Center for Public Opinion Research.

(Kull 2007). This list is followed by the country-by-country averages for the survey questions on climate changes which became the database for the following cross-regional and cross-national analysis of public opinion on climate change. See Appendix Table 1 for the list of polls and the number of surveyed countries.

The cross-national polls under examination vary in their coverage of countries. Some polls include several countries from each of the major world regions (North America, Latin America, Western Europe, Eastern Europe, Middle East, Sub-Saharan Africa, and Asia), while others include only a few so that classification of nations is made only roughly in terms of advanced and non-Asian developing countries as compared to Asian countries (refer to Appendix Table 2 for regional classifications of the surveyed countries in each poll).

The current survey data analysis is essentially an examination of the cross-regional and intra-regional patterns of the responses to twenty survey questions on various issues of climate change from the aforementioned polls. These survey questions are divided into four types as follows.

First, there is a set of questions tapping the degree of public awareness of climate change or global warming. The next set of questions address public perception of seriousness of climate change as an environmental problem. The third set of survey questions concern policy actions, which is divided again into (i) questions asking opinion about the urgency of policy actions needed to address climate change and (ii) questions asking the degree of willingness to bear the costs of policy actions to deal with climate change.

The latter is often known as the "willingness to pay" (WTP) or sacrifice questions in the environmental public opinion literature (Brechin 1999). This type of environmental survey questions is of particular significance, as it captures the intensity or sincerity of public support for environmental policy and hence provides a better estimate for the degree of public compliance with environmental policies.

The last set of questions address public attitudes towards the issues of international climate change policy.

Cross-regional Comparison

This sub-section presents the findings of cross-regional comparisons of public opinion on climate change, focusing on how Asians differ from the rest of the world in their perceptions and views of climate change.

At the most general level, the Pew May 2006 poll result shows that citizens of advanced countries far exceed those of developing countries in their level of awareness of the issue. Overall, 95% of the respondents from advanced countries mentioned that they heard of global warming, whereas 56.2% of Asians and 58.4% of those from non-Asian developing countries said so.

Looking into detail shown in Figure 1, one finds Asians' awareness of the climate change problem to be generally low. In contrast to North America and Western Europe where 89% and 76% of the respondents heard or read about the problem, only 61% of Asian respondents did so. This is the second lowest proportion among the six regions. If the rate of people hearing about the problem *a great deal* is counted, still Asia scores the middle of the rank.

[Figure 1 about here]

Interestingly, Asia fares a little better in the level of public concern about climate change. In the CCGA 2007 poll, an almost equal proportion of Asians and the citizens of other advanced countries (85% and 86%) answered that global warming is a critical or important threat. This makes a good contrast to the response rate of those in non-Asian developing countries (76%).

Figure 2 allows a more detailed comparison across the six world regions. Shown in this figure are two graphs for the responses to questions asking whether global warming/climate change is a serious problem and how concerned one is about the effect of energy use on climate change. In both questions, Asians show a similar level of concern about the problem to West Europeans.[2] This finding is also confirmed in different poll results as shown in Table 1.[3]

[Figure 2 & Table 1 about here]

The poll results for the next set of questions provide perhaps the most interesting and important implications for climate change policies. The first of these questions asks about the urgency of policy actions to address climate change problems. This question is of great importance because it can capture the degree of the public's acceptance of government initiatives on the mitigation of climate change problems.

Asians hold about the middle position between the residents of advanced and those of developing regions. The proportion of respondents viewing that major or modest steps are needed is 85% among Asians, which is significantly lower than among North Americans (93%) and West Europeans (95%). Yet this is higher than the respective proportion for the Middle East and Sub-Saharan African countries. The responses for the necessity of major rather than modest steps also show a similar

[2] Interestingly, the response rates for these two questions are reversed between North Americans and Western Europeans. West Europeans agree that global warming is a serious problem more than North Americans (90% vs. 81%), while North Americans are more concerned than West Europeans that energy use is causing climate change (89% vs. 78%).

[3] The GlobeScan 2005 Poll reports 91% of West Europeans and 88% of Asians agreeing that climate change is a serious problem. The response to the BBC Sept 2007 Poll question about human activity as a cause of climate change diverges between them, however. This seems to be largely because Japan was excluded in this poll.

pattern; the percentage of Asians viewing policy actions as really urgent is just between that of two advanced regions and that of the Middle East and Sub-Saharan Africa.

[Figure 3 about here]

The survey responses to the so-called willingness to pay questions are shown in the next three figures. Here lies the most surprising (and worrisome) tendency of Asian public opinion on climate change. In general, Asians are much less willing to bear costs implied in public policy measures to tackle climate change compared to people of most other regions. As seen in Figure 4, on the question about whether individuals need to change lifestyle and behavior to reduce the amount of greenhouse gases, Asians are much more reluctant to agree definitely than the residents of advanced countries. Furthermore, Asians turn out to be the most skeptical of the need to raise energy cost to meet the challenge of climate change.

[Figure 4 about here]

Figure 5 also sheds great light on Asian public opinion on climate change policies. Displayed in this figure are the responses to two poll questions about tax incentives for developing alternative energy or promoting energy conservation. Asians are the least supportive of tax incentives for alternative energy development; only 37% of Asians agreed on the idea, while more than 60% of Western Europeans and North Americans agreed. Asians (17%) instead turn out to favor policies encouraging energy conservation more than citizens of other regions do. This makes an interesting contrast to the public opinion of European countries, where less than 10% of the surveyed people support such policy.

[Figure 5 about here]

Figure 6 shows the responses to the questions similar to the previous ones. In these questions, people are asked whether they support higher energy tax to ameliorate climate change problems (i) unconditionally, (ii) only with their tax bills staying the same by other tax reductions, or (iii) if tax revenues are earmarked to research and development of clean and efficient energy.

[Figure 6 about here]

Notably, Asians are the least willing to accept higher energy taxes unconditionally; only 38% of Asians support unconditional higher tax bills for energy management, while the percentage of unconditional support for higher energy taxes exceeds 45% in all other regions. By the same token, Asians are more willing to support higher energy taxes if they are compensated through tax exemptions or if they are sure that the tax revenues are only used for alternative energy development. In comparison,

North Americans are much more willing to pay higher tax bills to deal with energy problems unconditionally, rather than with such extra conditionality.[4]

The final figure contains the responses to questions about one of the most important international policy debates as to climate change issues, namely sharing the burden of global adjustment to reduce greenhouse gas emissions. Two opposing claims are nicely summarized the survey questions; one is that developing countries with substantial and growing emissions should limit emissions along with wealthy countries, and the other is that wealthy countries have to provide financial and technological assistance to developing countries that agree to limit their emissions of climate changing gases.

[Figure 7 about here]

Not surprisingly, the residents of developed regions are more supportive of the first idea than those of developing regions. Yet the former is also more supportive of the need for wealthy countries to provide assistance for developing countries trying to reduce emissions. The Asian public shows roughly the middle positions between those of advanced and developing publics.

In addition, some polls also asked about the U.S. role in global climate change policy. Interestingly, Asians are the second most approving of the way the U.S. has handled climate change. At the same time, they also highly agree that the U.S. is the country that has hurt the environment most.

Intra-regional Comparison

This subsection presents intra-regional comparisons of public opinion on climate change in Asian countries. Note that each poll contains a slightly different set of Asian countries, which makes it a little bit difficult to compare cross-nationally within Asia.

This intra-regional comparison uses the same survey data. The questions are again divided into the four types introduced before – awareness of climate change as an environmental problem, level of concern about climate change problems, willingness to bear costs implied in policy actions to mitigate climate change, and views of

[4] This finding is rather striking, given the widespread perception of the U.S. vs. the rest of the world cleavage in environmental public opinion (Brechin 2003). In these energy tax-related questions, North Americans turn out to be more supportive of unconditional raise in energy tax than Western Europeans, contrary to the common view that the U.S. is a laggard in public endorsement of environmental causes. In fact, some of the misperceptions as to the U.S. environmental policy is mentioned in a recent article on the comparative politics of climate change. While the U.S. is often vilified for its refusal to ratify the Kyoto Protocol, it saw a 1.2% reduction in greenhouse gas emissions between 1990 and 2004, when the EU countries other than Germany and the U.K. saw a 7.8% rise in the same period (Harrison & Sundstrom 2007, p. 13).

international climate change policy issues. For simplicity of presentation, the responses for the first two types of survey questions are shown in Table 2.

[Table 2 about here]

One of the first notable cross-national differences revealed in Table 2 is that the degree of public awareness of climate change/global warming appears to be largely proportional to the level of economic development. Both Japan (99%) and South Korea (94%) show remarkably high proportions of respondents hearing about the climate change issue. The level of public concern about the climate change problem also seems to increase roughly with the degree of economic affluence, albeit to a lesser degree. Japanese and South Koreans almost unanimously agree that that global warming is a serious problem.

In comparison, Southeast Asian countries, having generally lower levels of development, show less perfect agreement on the seriousness of the climate change problem. The only exception is Bangladesh, whose citizens perceive global warming equally as serious as those of the two most developed countries in the region do. In fact, the proportion of respondents recognizing global warming as very serious rather than just serious is the highest among Bangladesh people (85% as opposed to 78% among Japanese or 75% among Koreans).

Such a high level of Bangladesh people's concern about global warming seems to be closely related to its geographical conditions. Among the ten Asian countries included in various polls, Bangladesh has the highest share of arable land its land area, which implies that it is perhaps the most vulnerable to the effects of climate change on agricultural production (see Appendix Table 4 for aggregate conditions of the surveyed Asian countries relevant to climate change).

The next table shows the responses to the questions about the urgency of policy actions for climate change and the willingness to bear costs to address the climate change problem. Again, public perceptions of the urgency of policy actions as well as public acceptance of higher energy taxes to cope with climate change tend to rise with the level of economic development. For example, South Korea ranks the first in the positive response rates for most questions. One interesting difference is found between the two East Asian countries. While both Chinese and South Koreans highly agree that individuals need to change individual lifestyle and behavior to cut down the greenhouse effect, the percentage of respondents agreeing to such a need strongly is far higher in China.[5] Also, South Koreans are far more skeptical than Chinese of higher

[5] In fact, the proportion of respondents believing individuals "definitely" need to change their lifestyle is the lowest among South Koreans. This reluctance to accept lifestyle changes for climate change reduction might reflect the confidence of South Koreans in developing energy-efficient growth technologies that may delay or transform the environment-growth trade-off.

energy taxes if the use of tax revenues is unspecified, whereas Chinese are less supportive than South Koreans of higher energy taxes with earmark for clean energy development.

[Table 3 about here]

The last table displays the responses to the questions about sharing the global cost of reduction of climate changing gases. As expected, China, the most vocal about rich countries' financial support and transfer of technologies, shows the highest percentage (90%) of approval for the idea of financial and technological assistance. Quite interestingly, Indians are much more skeptical of that idea, with only 47% agreeing to such assistance.

Finally, it is also intriguing to find that the public of all three East Asian countries show a similar level of accord on the U.S. as the country hurting the environment most, while Southeast Asians differ greatly in their views about the U.S. being the most environmentally harmful country. This difference among Southeast Asian countries seems to be related to their overall relationship with the U.S. in the post-Cold War era; the three countries with sizeable Islamic populations (Indonesia, Bangladesh, and Pakistan) all show much higher proportions of the respondents viewing the U.S. as the country harming the environment most.[6]

[Table 4 about here]

Summary & Implications

To summarize the findings so far, Asians' awareness of climate change or global warming is generally low compared to citizens of other world regions, although their level of concern about climate change problems is somewhat higher. In addition, Asians turn out to be much less willing to bear costs to mitigate the climate change problem in terms of individual lifestyle changes. Asians are also the least supportive of raising energy taxes unconditionally.

As for specific energy policies related to climate change mitigation, Asians' support for tax incentives for alternative energy development is the lowest among all the surveyed respondents of the six world regions, yet Asians are more supportive of tax incentives for promoting energy conservation than other-region citizens.

Turning to intra-regional differences in public opinion on climate change, the level of public awareness and concern about climate change problems of Asian countries appears to be largely proportional to their level of economic development, though a vulnerability factor also weighs in as in the case of Bangladesh. Also, China

[6] In the same vein, it is no wonder that the two countries in a closer diplomatic relationship with the U.S. (South Korea and the Philippines) show the highest approval rates for the way the U.S. has handled climate change issues in international politics.

and South Korea reveals an interesting difference in public views of energy tax, with Chinese being more supportive of unconditional raise in energy tax and South Koreans being more supportive of higher energy taxes with tax revenue earmarked for clean energy development.

Before pondering upon implications of these findings, let me point out some limitations of the current study. One of the most troubling limitations is the lack of survey data. Asia is the world's most populous continent, taking up 60.3% of the world population spread in 47 countries. Yet existing cross-national polls on climate change includes only a handful of Asian countries, which makes it extremely hard to obtain representative samples of Asians.

Related, unlike national polls conducted at regular intervals on significant policy problems, cross-national polls tend to have a simpler version of survey questions. As for climate change public opinion, many scholars have compiled an excellent stock of poll questions about specific aspects of the climate change issue (such as questions asking about detailed causes and effects of climate change) on the national basis. Yet no comparable set of detailed questions exist for climate change issues in multinational polls.[7] This limits us to examining survey questions dealing with general aspects of climate change issues.

That said, it is still worth attempting to make the best use of the existing survey data on climate change, especially in order to understand public views of the world region that has perhaps the most significant impact on future development of climate change and the global politics thereof.

The current findings for Asian public opinion on climate change portray a rather gloomy prospect for climate change policy at both national and global levels. First, the findings show that within Asia individual countries vary greatly in their public's perception of climate change issues. Such large variation in public views of climate change among Asian countries is likely to become a barrier to establishing a common framework for regional policy measures to address more region-specific environmental problems related to climate change.

For instance, in East Asian countries climate change is more of a problem of greenhouse gas emission due to industrial production and the trade-off involved in policy measures to compromise growth and environmental quality. On the other hand, in Southeast Asian countries climate change is largely a problem of deforestation, irregular crop production, and many other climate-related disasters such as flood and spread of infectious diseases. Both the context and public perception of climate change

[7] Although studies of climate change public opinion such as Brechin (2003) and Lorenzoni & Pidgeon (2006) are cross-national in their scope, much of the data they draw upon originally come from national polls.

in the two sub-regions of Asia will need to be carefully thought about in devising regional policy coordination for climate change mitigation.

Perhaps the most troubling finding in the cross-regional comparison of climate change public opinion is that Asians are the least willing to bear costs implied in active policy measures to meet the challenge of climate change. Given that China already surpassed the U.S. as the biggest emitter of CO_2, and Asia is home to the world's most populous countries (and countries with fastest population growth), the reluctance on the part of Asians to take up the costs of adjustment for amelioration of climate change effects implies a great hurdle for the coming years of global politics and management of climate change.

One interesting (or hopeful) message of the current findings is, however, that such reluctance might well be due to Asians' relative ignorance of the climate change issue, as shown in the first set of questions about awareness of climate change. As noted by Hansen, at al. (1998),

> "Scientists tend to speak in jargon. This tendency is a pernicious problem for an issue such as climate change, because ultimately the public, through its elected representatives, must decide on policies that will influence future climate. (p. 4113)."

Indeed, as Lorenzoni, et al. (2006) has demonstrated, climate change is "psychologically distant for most individuals" compared to more traditional environmental problems. Therefore, the first step to mobilize public support for the cause of climate change mitigation among Asians would be to raise public awareness of the urgency of the climate change problem and to fill knowledge and information gaps in climate change issues among the public.

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Tables

Table 1: Public Concern about Climate Change

	Climate change is a serious problem (GlobeScan 2005)	Human activity is a significant cause of climate change (BBC Sept 2007)
North America	83.0	76.3
Latin America	93.3	89.0
Europe	91.6	86.3
Middle East	97.0	68.0
Sub-Saharan Africa	72.3	72.0
Asia	88.2	74.4

Table 2: Awareness of and Concern about Climate Change: Intra-regional Comparison

	Have heard of global warming (Pew May 2006)	*Heard or read about global warming or climate change* (BBC Sept 2007)		*Climate change is a serious problem* (Globescan 2005)	*Global warming is a _____ problem* (Pew May 2007)		*Global warming is a _____ threat* (CCGA 2007)		*Human activity causing climate change* (BBC Sept 2007)	*Concerned that energy use is causing climate change* (BBC July 2006)	
	Yes	A great deal	Some	Yes	Very serious	Somewhat serious	Critical	Important	Yes	Very concerned	Somewhat concerned
East Asia											
China	78	30	42	80	42	46	47	33	87		
Japan	99			98	78	19					
S. Korea		43	51	94	75	22	67	29	91	43	47
Southeast Asia											
Bangladesh					85	12					
India	57	15	33	90	57	28	51	27	47	41	20
Indonesia	35	8	20	81	43	32			71		
Malaysia					46	32					
Pakistan	12				41	21					
Philippines		38	25	86					76	47	41

Table 3: Views of Policy Actions on Climate Change: Intra-regional Comparison

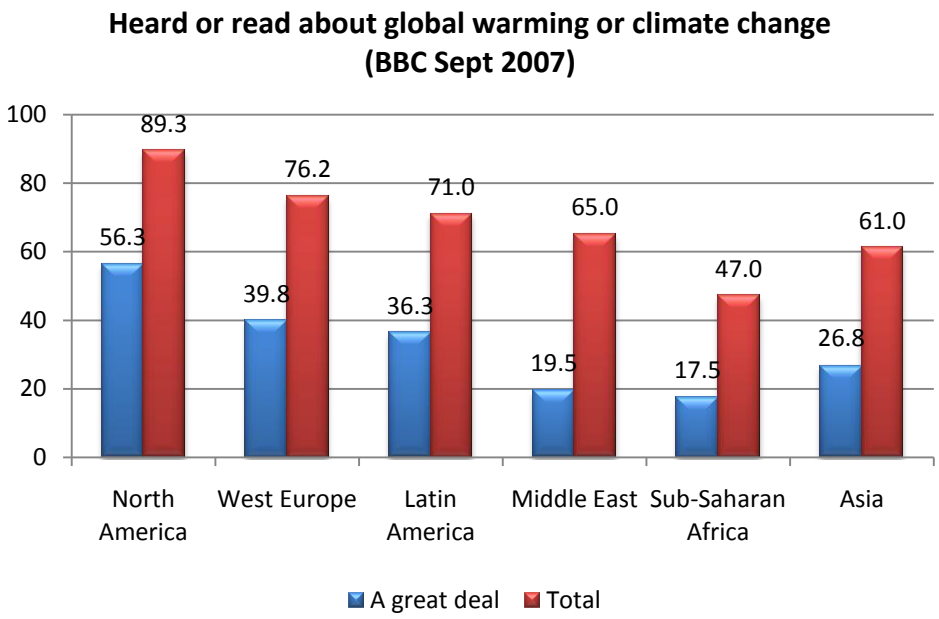
	It is necessary to take _____ steps (BBC Sept 2007)		*Climate change should be addressed _____* (CCGA 2007)		*Individuals need to change lifestyle to reduce climate changing gases?* (BBC Sept 2007)		*Tax incentives for alternative energy* (BBC July 2006)		*Favor higher energy taxes* (BBC Sept 2007)	
	Major	Modest	Now even with costs	Gradually	Definitely	Probably	Strongly favor	Somewhat favor	Uncondi-tionally	If earmarked for clean energy
East Asia										
China	70	25	42	41	59	28			83	12
S. Korea	48	45			28	58	31	51	39	31
Southeast Asia										
India	37	26	19	30	34	27	49	19	38	22
Indonesia	64	22			46	38			56	23
Philippines	70	19	27	49	46	41	31	39	37	32
Thailand			27	41						

Table 4: Views of International Policy on Climate Change: Intra-regional Comparison

	Less-wealthy countries should cut emissions (BBC Sept 2007)	*Wealthy countries should give assistance* (BBC Sept 2007)	*The US hurting the environment most* (Pew May 2007)	*Approve US handling of climate change* (BBC Dec 2006)
East Asia				
China	68	90	38	39
Japan			36	
S. Korea	56	72	30	50
Southeast Asia				
Bangladesh			61	
India	33	47	25	47
Indonesia	54	78	52	38
Malaysia			38	
Pakistan			41	
Philippines	49	71		59

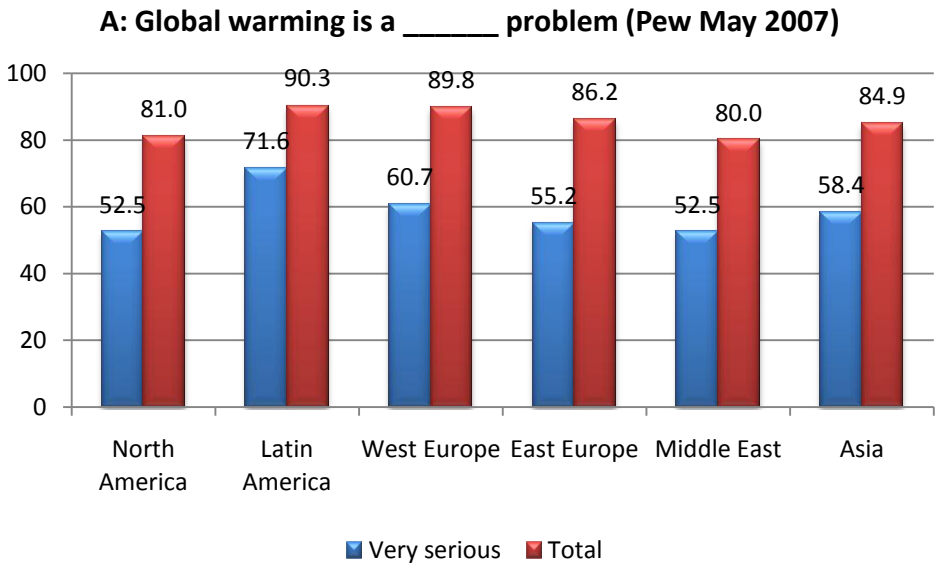
Figures

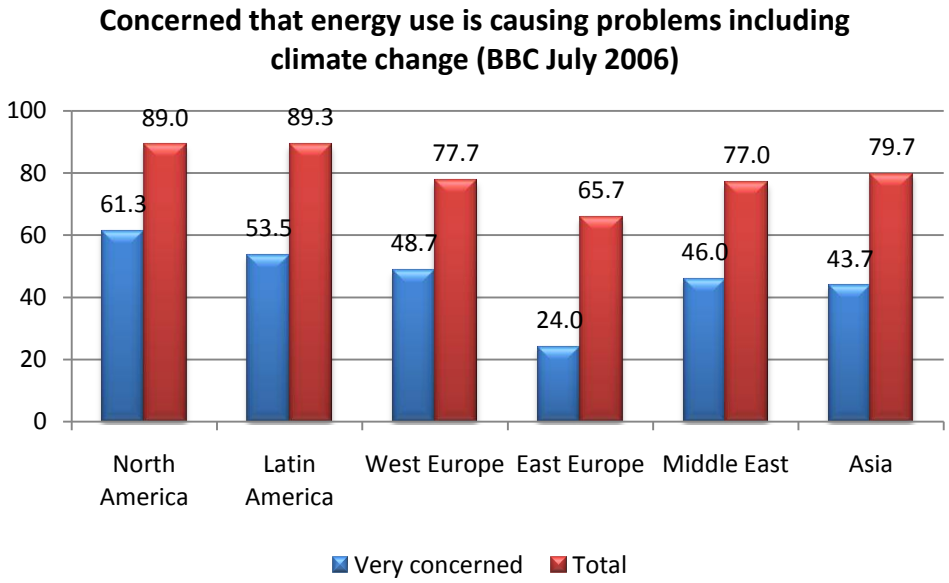
Figure 1: Public Awareness of Climate Change



Total refers to the percentage of respondents who heard or read about climate change a great deal or somewhat.

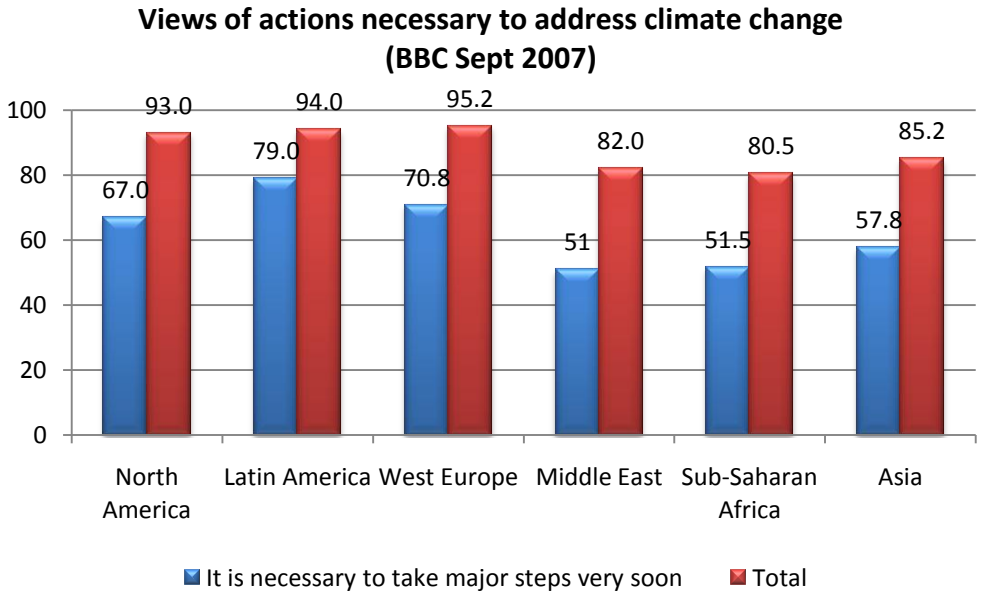
Figure 2: Public Concern about Climate Change





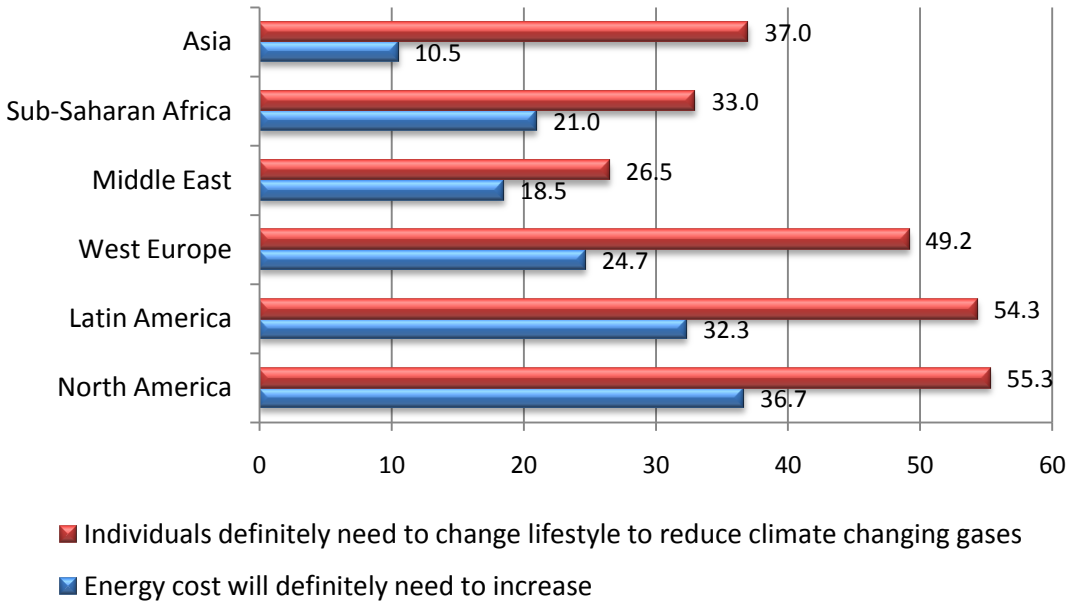
Total refers to the percentage of respondents who said that global warming is a very serious or serious problem (Graph A) and to the percentage of respondents who are very concerned or concerned that energy use is causing problems (Graph B).

Figure 3: Public View of Necessity of Urgent Action on Climate Change



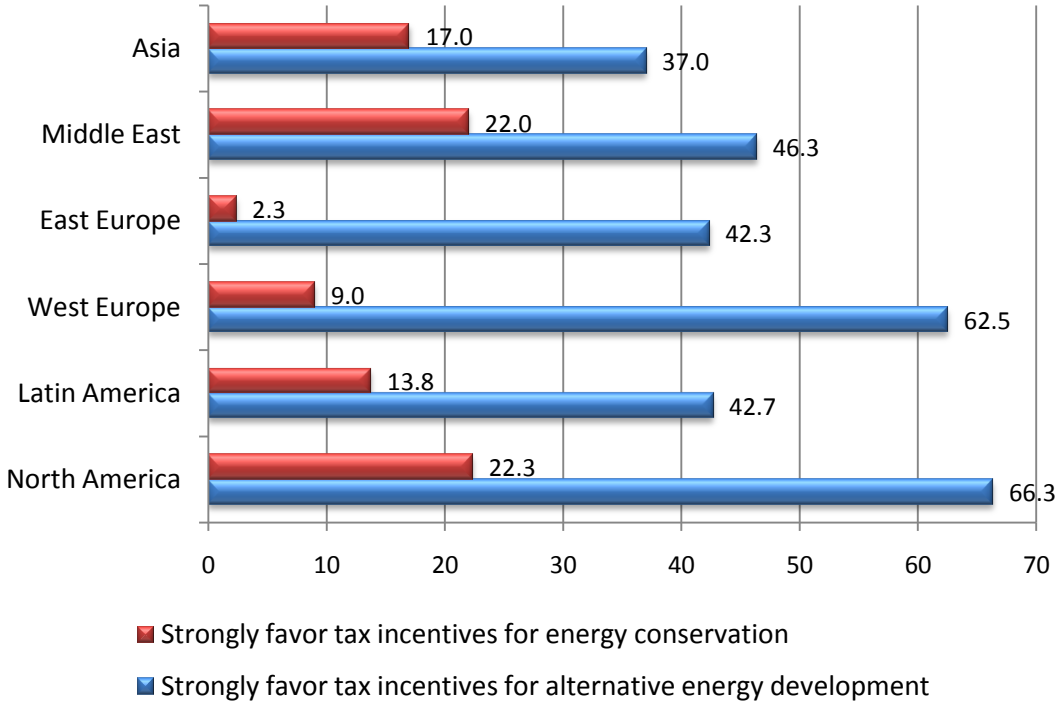
Total refers to the percentage of respondents who viewed that it is necessary to take major steps very soon or modest steps in coming years.

Figure 4: Willingness to Change Lifestyle to Ameliorate Climate Change



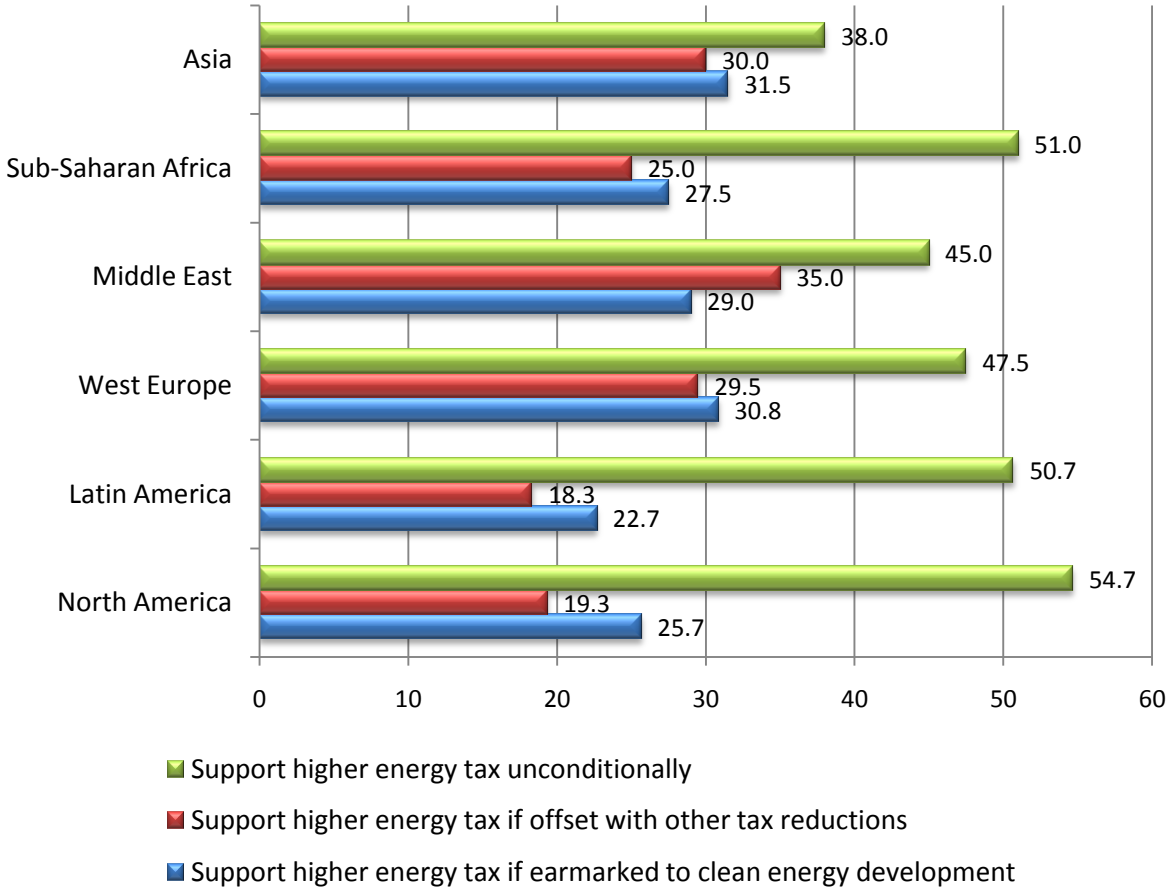
Source: BBC Sept 2007

Figure 5: Public View of Tax Incentives to Address Climate Change



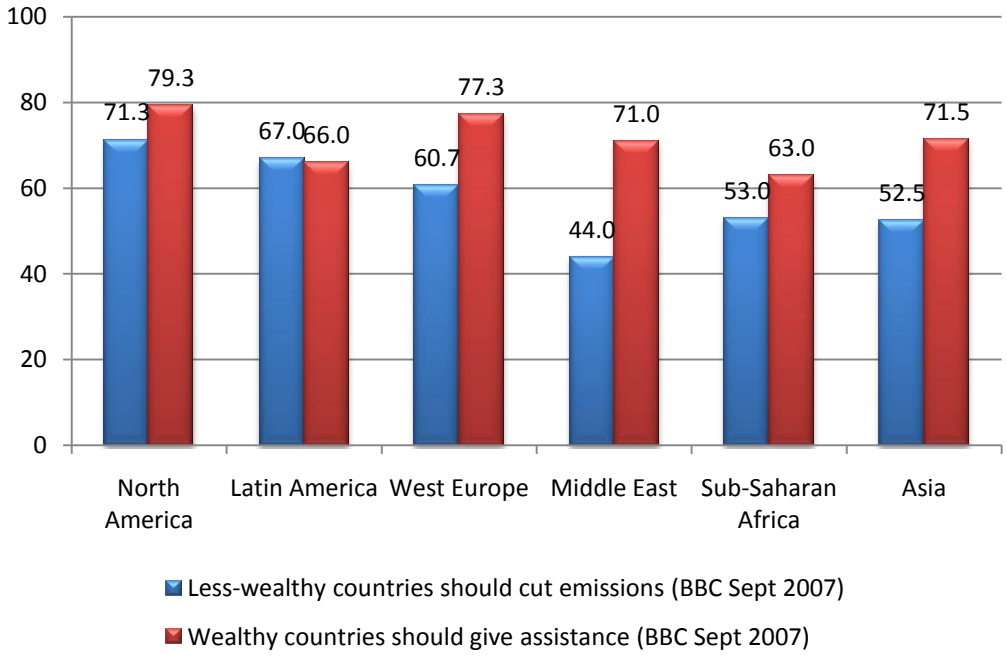
Source: BBC July 2006

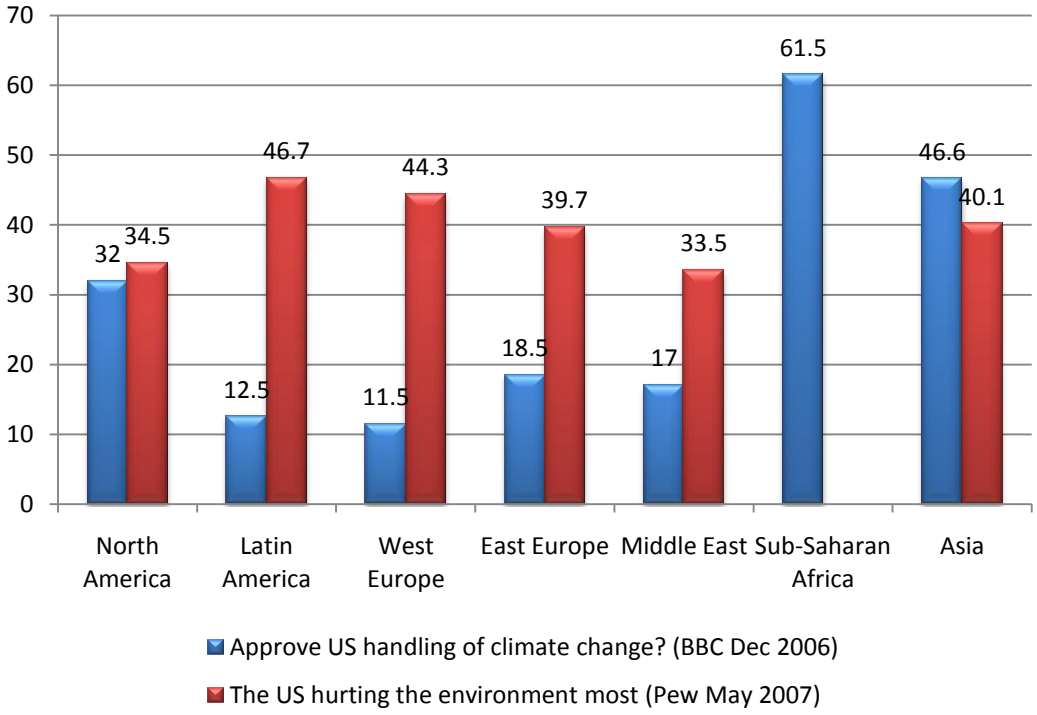
Figure 6: Public View of Energy Tax to Address Climate Change



Source: BBC Sept 2007

Figure 7: Public View of International Policy on Climate Change





Appendix Table 1. Cross-national Polls on Climate Change

Poll	Full Name	Field Dates	# of Countries	Sample Size
Pew May 2006	2006 Pew Global Attitudes Project Poll	April-May 2006	15	16,710
Pew May 2007	2007 Pew Global Attitudes Project Poll	April-May 2007	47	45,239
GlobeScan 2005	2005 GlobeScan Poll	Oct 2005-Jan 2006	30	33,237
CCGA 2007	2007 Chicago Council on Global Affairs Poll	June 2006-May 2007	18	21,818
BBC July 2006	2006 BBC/Globescan/PIPA Poll	June-July 2006	19	19,579
BBC Dec 2006	2007 Winter, BBC/GlobeScan/PIPA Poll	Nov-Dec 2006	25	26,381
BBC Sept 2007	2007 Fall, BBC/GlobeScan/PIPA Poll	June-July 2007	21	22,182

Appendix Table 2. Regional Classification of the Surveyd Countries

Region	Pew May 2006	Pew May 2007	GlobeScan 2005	CCGA 2007	BBC July 2006	BBC Dec 2006	BBC Sept 2007
Advanced	France, Germany, Spain, UK, US			Australia, Israel, US			
Non-Asian Developing	Egypt, Jordan, Nigeria, Russia, Turkey			Armenia, Iran, Mexico, Ukraine			
North America		Canada, US	Canada, US		Australia*, Canada, US	Australia*, US	Australia*, Canada, US
Latin America		Argentina, Bolivia, Brazil, Chile, Mexico, Peru, Venezuela	Argentina, Brazil, Chile, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama		Brail, Chile, Mexico	Argentina, Brazil, Chile, Mexico	Brazil, Chile, Mexico
Europe			Finland, France, Germany, Italy, Poland, Russia, UK				France, Germany, Italy, Russia, Spain, UK
Western Europe		France, Germany, Italy, Spain, Sweden, UK			France, Germany, Italy, UK	France, Germany, Italy, UK	
Eastern Europe		Bulgaria, Czech Republic, Poland, Russia, Slovakia, Ukraine			Poland, Russia, Ukraine	Hungary, Poland, Portugal, Russia	

Middle East		Egypt, Israel, Jordan, Kuwait, Lebanon, Morocco, Palestinian, Turkey	Saudi Arabia, Turkey		Egypt, Israel, Keyna*	Egypt, Lebanon, Turkey, UAE	Egypt, Turkey
Sub-Saharan Africa			Kenya, Nigeria, S. Africa			Keyna, Nigeria	Keyna, Nigeria
Asia	China, India, Indonesia, Japan, Pakistan	Bangladesh, China, India, Indonesia, Japan, Malaysia, Pakistan, S. Korea	China, India, Indonesia, Japan, Philippines, S. Korea	China, India, Philippines, S. Korea, Thailand	India, Philippines, S. Korea	China, India, Indonesia, Philippines, S. Korea	China, India, Indonesia, Philippines, S. Korea

Appendix Table 3. List of Poll Questions on Climate Change

Type & Wording of Questions	Poll
Awareness	
Have heard of global warming? Have heard of it, have not heard of it	Pew May 2006
Heard or read about global warming or climate change? - A great deal, some, not very much, nothing at all	BBC Sept 2007
Perception/Concern	
Is climate change a serious problem or not? - Serious vs. not serious	GlobeScan 2005
Is global warming a problem? - Very serious, somewhat serious, not too serious, not at all	Pew May 2007
Do you see global warming as a critical threat, an important but not critical threat, or not a problem?	CCGA 2007
How concerned are you that energy use is causing problems including climate change? - Very concerned, somewhat concerned, not very concerned, not at all	BBC July 2006
Do you think that human activity is a significant cause of climate change? - Yes or no	BBC Sept 2007
Policy Actions	
Urgency of Action	
Do you think that (1) it is necessary to take major steps very soon, (2) it is necessary to take modest steps in coming years, or (3) it is not necessary to take any steps?	BBC Sept 2007
Which of the following statements do you agree to? (1) Until we are sure that global warming is really a problem, we should not take any steps that would have economic costs, (2) Global warming should be addressed, but its effects will be gradual, so we can deal with the problem gradually by taking steps that are low in cost, (3) Global warming is a serious pressing problem. We should begin taking steps now even if this involve significant costs.	CCGA 2007
Willingness to Pay (or Sacrifice)	
Will individuals need to change lifestyle and behavior to reduce amount of climate changing gases produced? - Definitely necessary, probably necessary, probably not, definitely not	BBC Sept 2007
Will the cost of energy need to increase so individuals/industry use less? - Definitely necessary, probably necessary, probably not, definitely not	BBC Sept 2007
Do you favor creating tax incentives for development of alternative energy? - Strongly favor, somewhat favor, somewhat oppose, strongly oppose	BBC July 2006

Do you support for higher taxes on most harmful types of energy so that individuals/industry use less? (1) Favor without tax revenues being explained, (2) Favor if tax revenue is dedicated to clean/efficient energy	BBC Sept 2007
Do you support for higher energy taxes with offsetting tax cuts? (1) Favor without qualification, (2) Favor if other taxes are reduced so total tax bill stayed the same	BBC Sept 2007
Do you favor increasing energy taxes to encourage conservation? - Strongly favor, somewhat favor, somewhat oppose, strongly oppose	BBC July 2006
International Policy	
Do you agree that less-wealthy countries with substantial and growing emissions should limit emissions along with wealthy countries?	BBC Sept 2007
Do you agree that wealthy countries would agree to give financial assistance and technology to less wealthy countries that agree to limit their emissions of climate changing gases?	BBC Sept 2007
Do you approve the way the US has handled climate change	BBC Dec 2006
Which country do you think hurts the environment most? - the US	Pew May 2007

Appendix Table 4. Aggregate Conditions of Asian Countries Related to Climate Change

	Affluence	Vulnerability					Political Regime		
	GDP per capita (constant 2000 US$)	Energy use (kg of oil equivalent per capita)	CO2 emissions (metric tons per capita)	Carbon dioxide damage (% of GNI)	Land use, arable land (% of land area)	Forest area (% of land area)	Politial rights	Civil liberties	Polity score
East Asia									
China	855.9	903.2	2.2	1.6	14.7	17.5	7	6	-7
Japan	37408.9	4111.5	9.3	0.1	12.3	66.1	1	2	10
South Korea	10890.2	4060.9	9.1	0.5	17.4	63.3	1	2	8
Southeast Asia									
Bangladesh	360.0	142.8	0.2	0.4	62.5	10.2	4	4	6
India	450.2	508.8	1.1	1.4	54.4	21.6	2	3	9
Indonesia	728.2	692.1	1.3	1.1	11.3	58.0	3	4	8
Malaysia	3881.4	2080.0	6.2	1.0	5.5	58.7	4	4	3
Pakistan	531.0	459.0	0.8	0.9	18.9	19.4	6	5	-5
Philippines	990.7	553.6	1.0	0.6	31.1	28.9	2	3	8
Thailand	2020.9	1227.9	3.3	1.0	27.6	3.1	2	3	9

Data: (1) Affluence/vulnerability indictors from the 2005 *World Development Indicators* (year of measurement = 2000)
(2) Political regime indicators from the *Polity IV* Database & 2008 *Freedom House* Database (year of measurement = 2005)

* Political rights & civil liberties (1 = greatest to 7 = least),

** Polity Score (-10=most autocratic to 10=most democratic)