

Horizon Research

Chinese Residents' Perception of Environment & Energy

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Table of Contents



1. Research Background	03
2. Research Methods	05
3. Research Findings	07
3.1. Chinese Residents' Energy Shortage Awareness	08
3.2. Key Environment & Energy Issues in Chinese Residents' Mind	13
3.3. Attribution of Responsibility for Energy Development & Equipment Maintenance.....	22
3.4. International Cooperation in Energy Development	25
3.5. Sino-Japanese Cooperation in Energy Development	27
3.6. Energy Pricing	32
3.7. Residents' Energy-Saving Behavior	38
4. Conclusions	39
5. Technical Notes	40

Research Background



- In terms of per capita ownership, China is an oil-thirsty nation. According to some authoritative international institution, China was the world's second largest energy consumer in 2002, and by 2050 it may replace the U.S. as the number one energy consumer in the world.
- In the energy utilization process, if pollution of atmospheric environment is not effectively curbed, by 2020, the population affected by pollution will reach 490 million, accounting for 1/3 of the total, early deaths caused by pollution will hit 550,000, with economic loss being some RMB41 billion.
- Both the power shortage in the Yangtze River Delta and coal shortage and oil shortage in Northeast, East China, North China and Southwest indicate that **the restraining effect of resources on economic development is looming.**



Research Background


China's strategic guideline for energy development

- China's strategic guideline for energy development: with the development of traditional energy sources (electricity and coal) as basis, make great efforts to develop hydroelectricity, oil and natural gas, and tap nuclear power, new energy sources and renewable energy, improve energy structure and increase the supply of quality energy sources.


China's energy issue

- China's energy issue is much more than a domestic issue. It has evolved from a purely economic and production issue into a broad issue involving international security, international politics, international diplomacy and even military affairs.



Research Method

Areas of Survey : Beijing, Shanghai, Guangzhou, Wuhan, Chengdu, Shenyang and Xi'an



Respondents

Survey method

Number of respondents

Data processing

- Local residents aged 14-60

- Door-to-door interview

- 2,204

- Analysis with SPSS11.5; in the significance test, $P \leq 0.05$.

Research Method



Sampling method

- Multistage random sampling



Weighting method

- The survey data was weighted according to the seven cities' population, forming weight variables. Data analysis was obtained through weighting.

Table of Contents for Research Findings

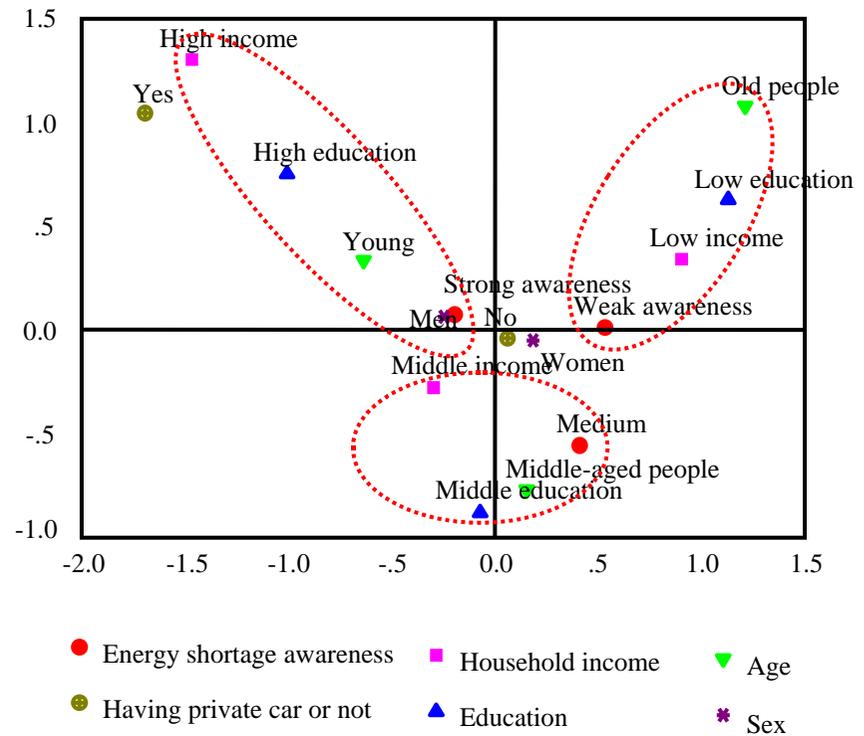
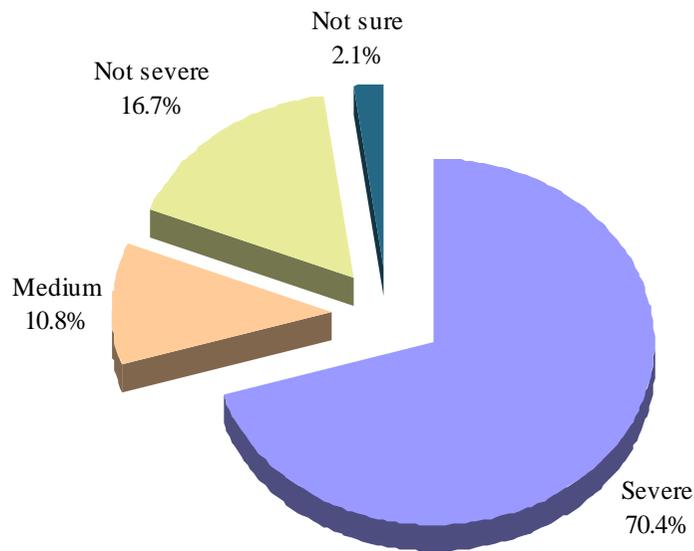


3.1. Chinese Residents' Energy Shortage Awareness.....	08
3.2. Key Environment & Energy Issues in Chinese Residents' Mind.....	13
3.3. Attribution of Responsibility for Energy Development & Equipment Maintenance...22	
3.4. International Cooperation in Energy Development.....	25
3.5. Sino-Japanese Cooperation in Energy Development.....	27
3.6. Energy Pricing	32
3.7. Residents' Energy-Saving Behavior.....	38

3.1 Chinese Residents' Energy Shortage Awareness



Seventy percent of urban residents think China suffers from severe energy shortage. Highly-educated young men with high income have strong awareness of energy crisis, while old women with low education and low income do not have strong awareness of energy crisis.



3.1 The Energy Shortage Awareness of People of Different Sex



❖ Men have stronger Energy Shortage Awareness than women

	Men	Women
Not severe	14.8	18.0
Medium	10.8	10.8
Severe	72.9	68.7
Don't know/refuse to answer	1.5	2.5
Total	100	100.0

3.1 The Energy Shortage Awareness of People with Different Education Background



❖ The higher education background one has, the stronger his Energy Shortage Awareness is.

	Low education	Middle education	High education
Not severe	24.1	15.7	11.5
Medium	11.7	13.0	6.4
Severe	60.9	69.5	80.8
Don't know/refuse to answer	3.3	1.9	1.2
Total	100.0	100.0	100.0

3.1 The Energy Shortage Awareness of People with Different Income Levels



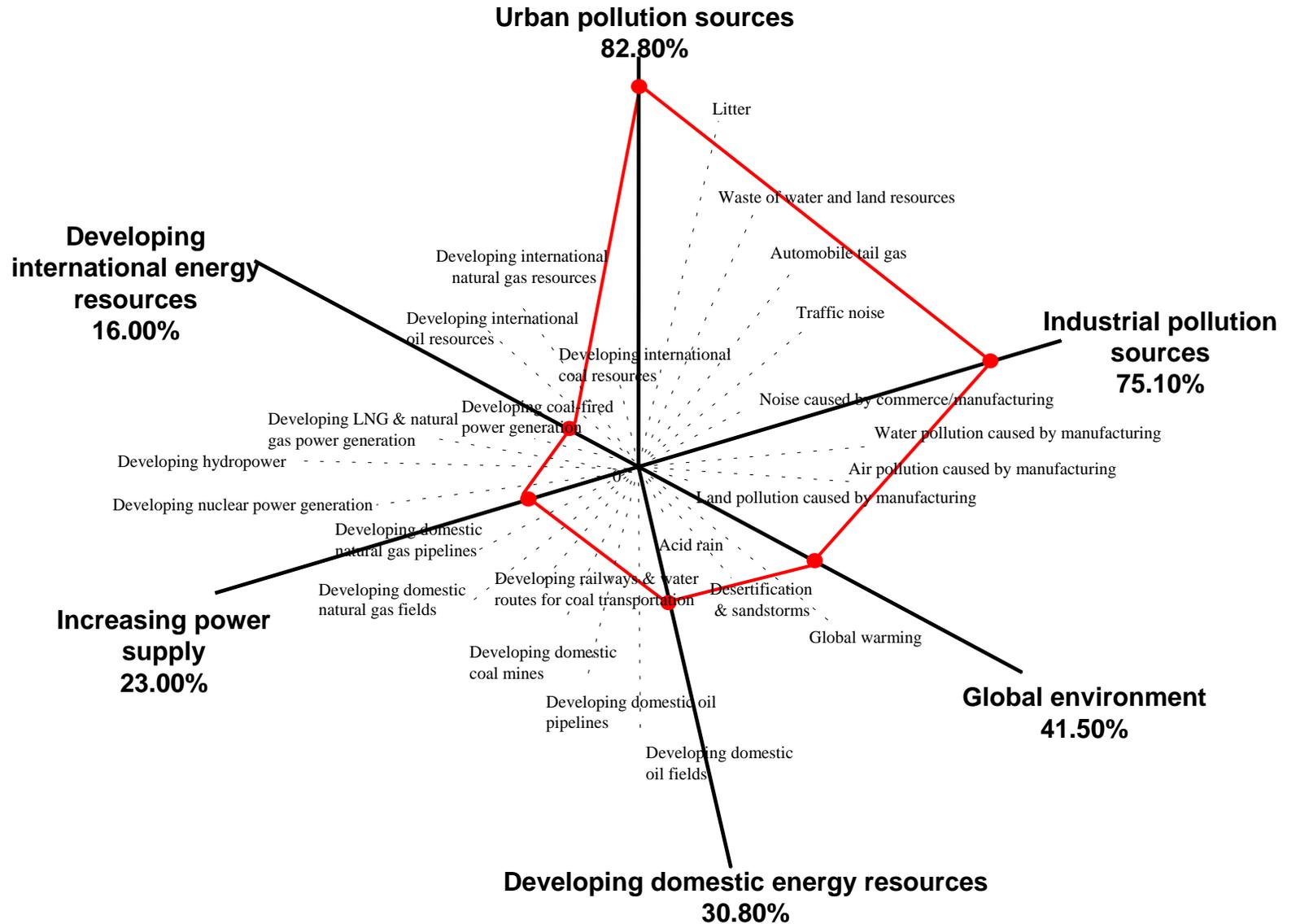
❖ The higher income one receives, the stronger his Energy Shortage Awareness is

	Low income	Lower middle income	Middle income	Upper middle income	High income
Not severe	18.6	16.1	12.1	10.7	4.9
Medium	11.7	7.8	8.7	7.7	0.0
Severe	67.6	74.9	77.7	81.6	84.3
Don't know	2.1	1.2	1.5	0.0	10.8
Total	100.0	100.0	100.0	100.0	100.0

3.2 Environmental & Energy Issues of Concern to Chinese Residents



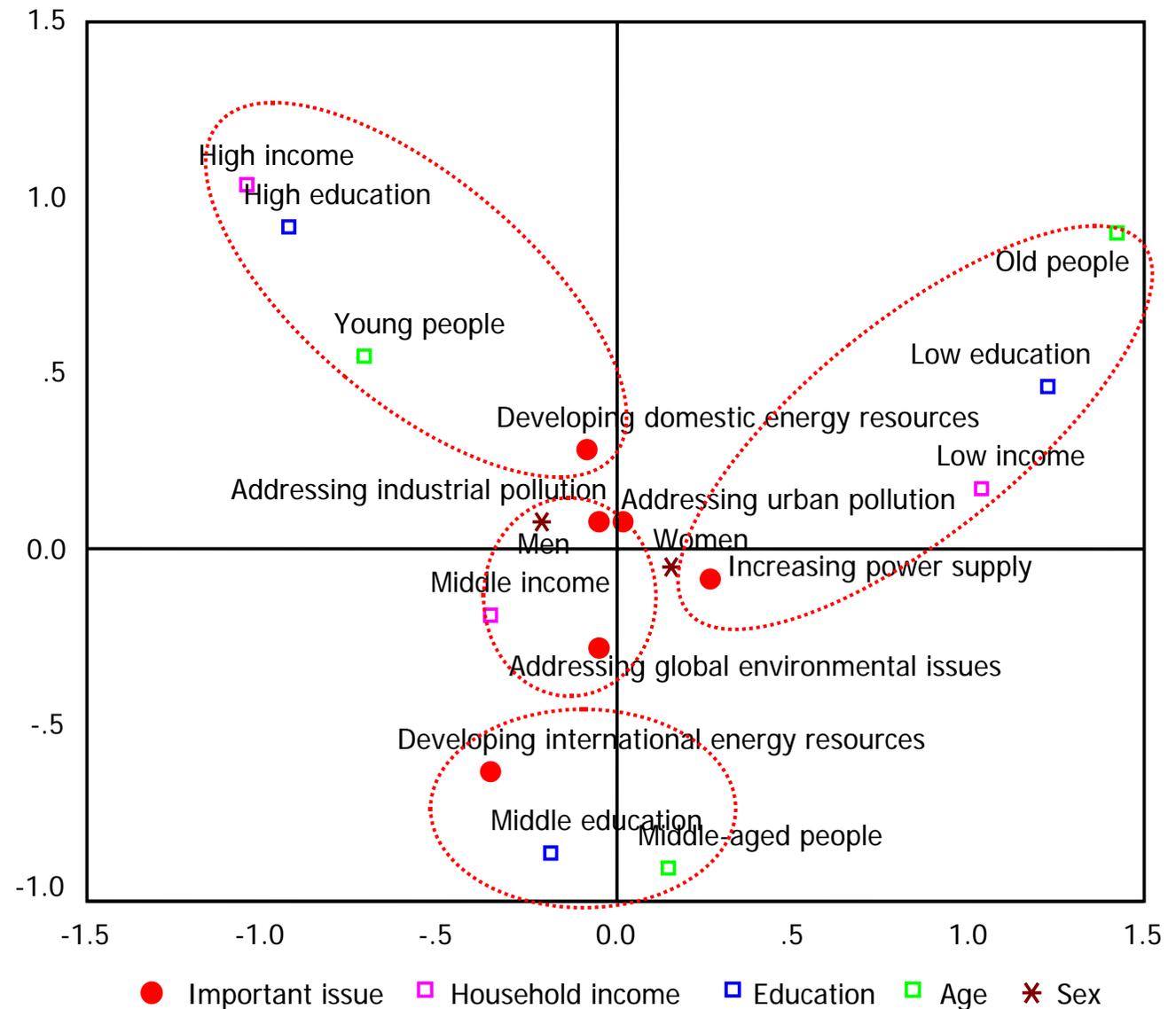
❖ Chinese residents do not pay as much attention to energy issues as they do to environmental protection.



3.2 Environmental & Energy Issues of Concern to Chinese Residents



Middle-aged people with middle education lay store by the development of international energy resources; those with low income and low education look to increased power supply; highly-educated young people with high income attach great importance to the development of domestic energy resources. Those with middle income pay more attention to environmental issues than to energy issues.

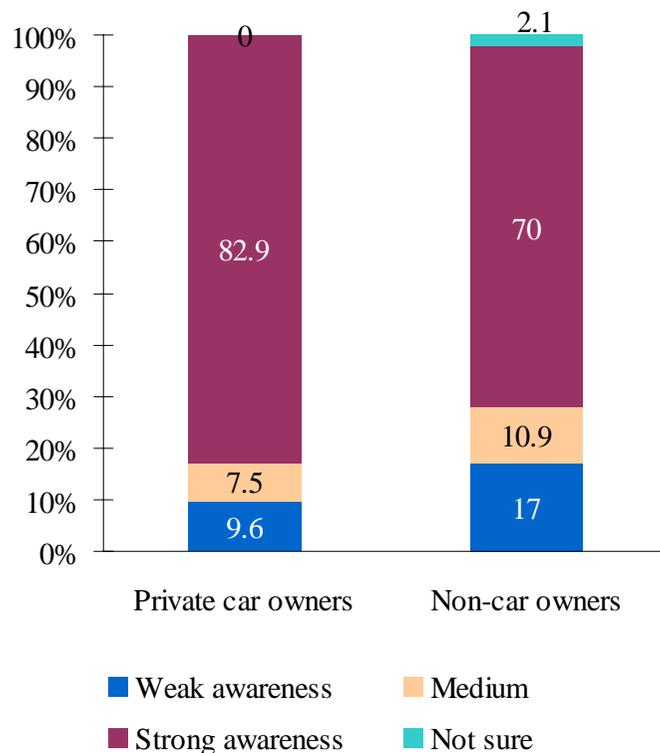


3.2 Environmental & Energy Issues of Concern to Chinese Residents

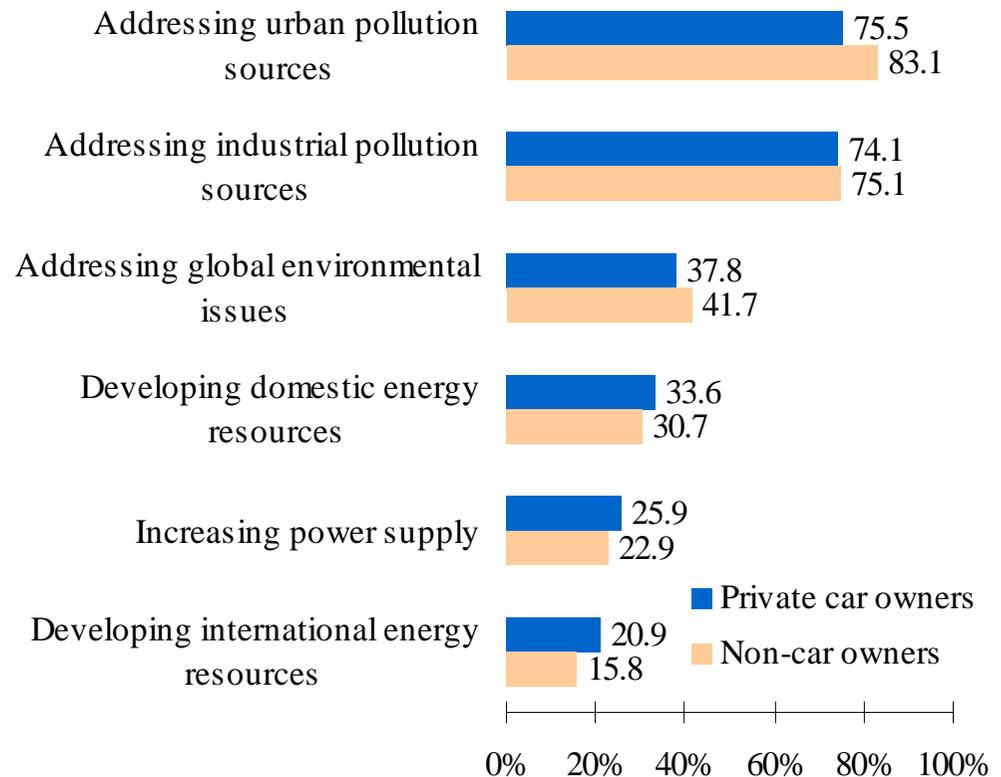


❖ Private car owners are more concerned with energy issues, while those without a car are more concerned environmental protection.

Energy shortage awareness



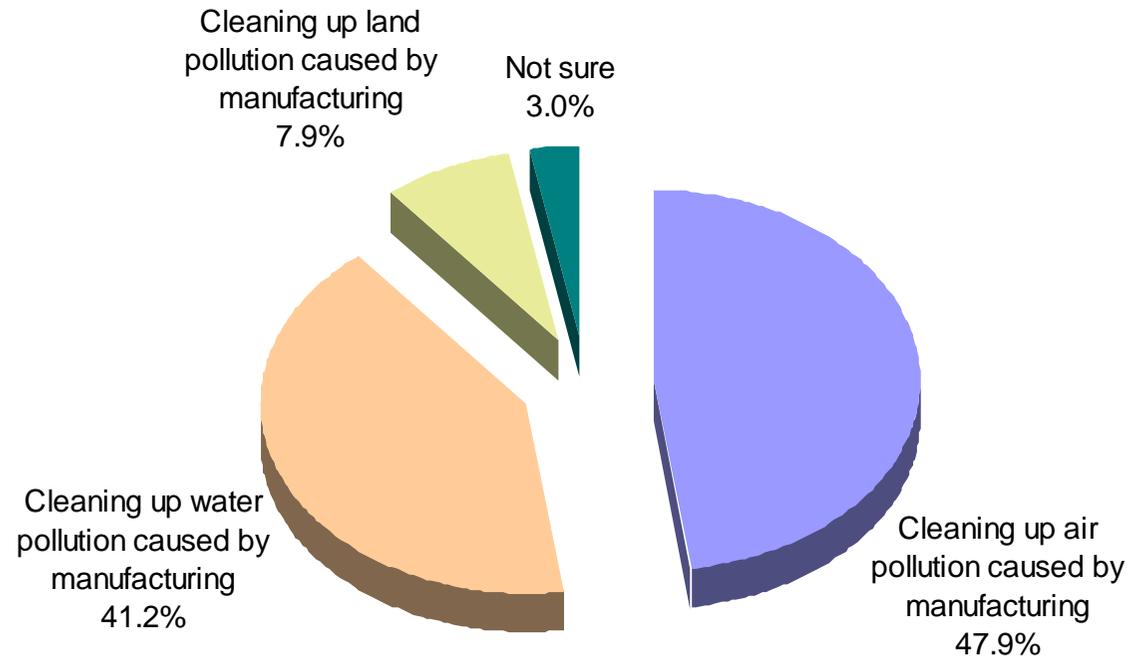
Energy and environmental issues of concern to the residents



3.2 Environmental & Energy Issues of Concern to Chinese Residents



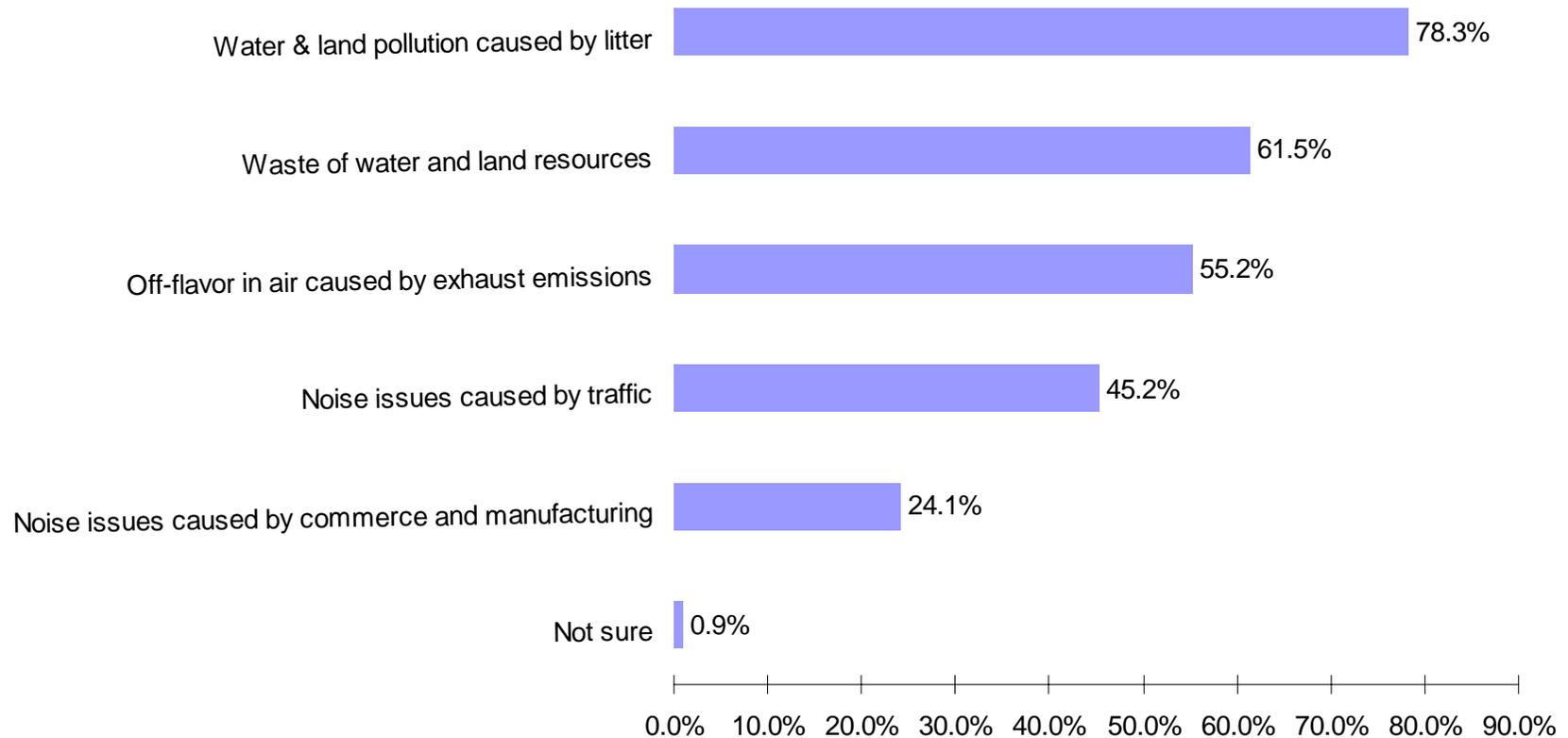
Most Important Problem in Industrial Pollution



3.2 Environmental & Energy Issues of Concern to Chinese Residents



Most Important Problem in Urban Pollution

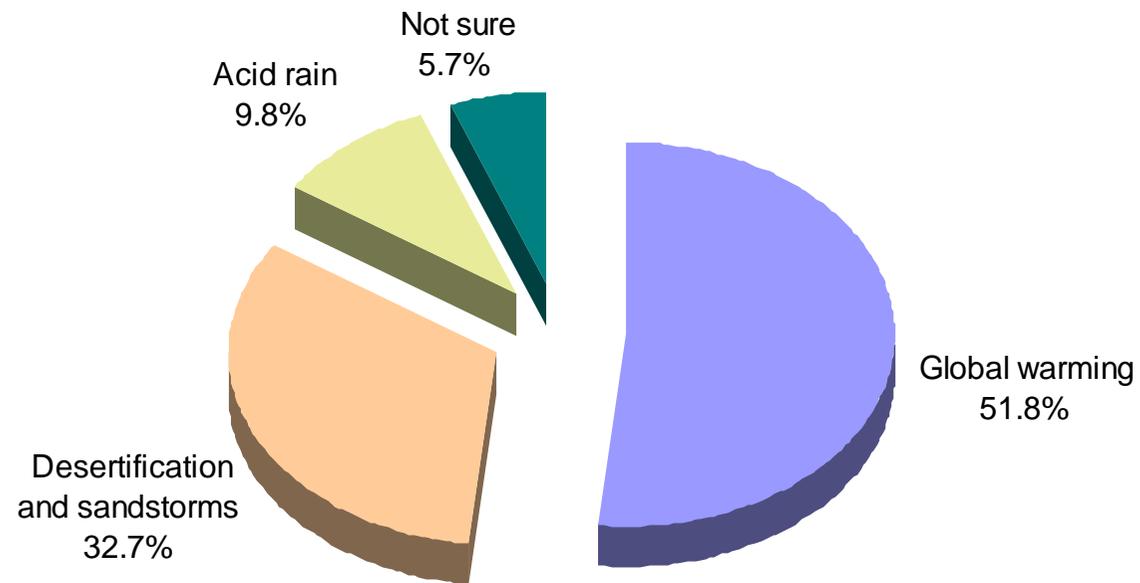


Note: It is a multiple-choice question. The sum of response percentage exceeds 100%.

3.2 Environmental & Energy Issues of Concern to Chinese Residents



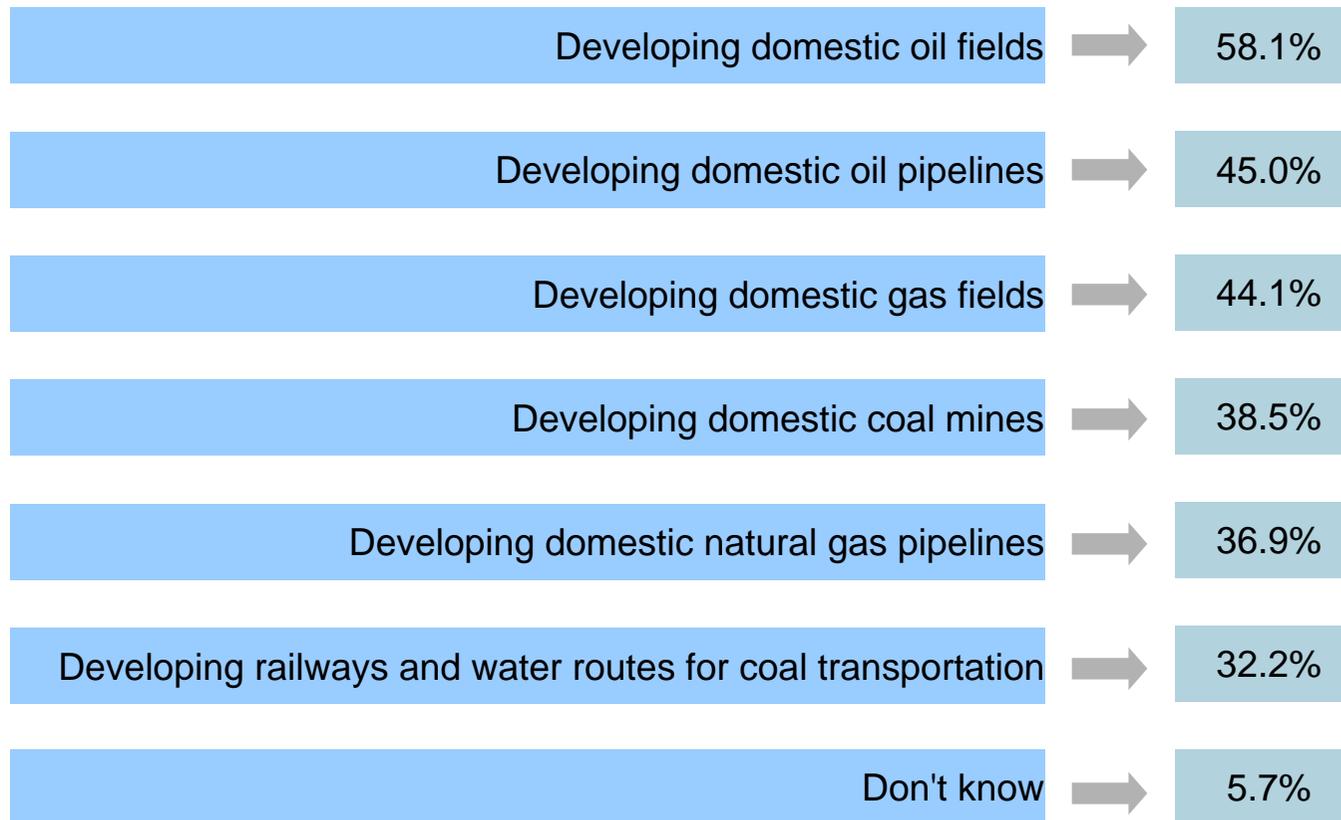
Most Severe Global Environmental Issue





3.2 Environmental & Energy Issues of Concern to Chinese Residents

Most Important Issue in the Development of Domestic Energy Resources

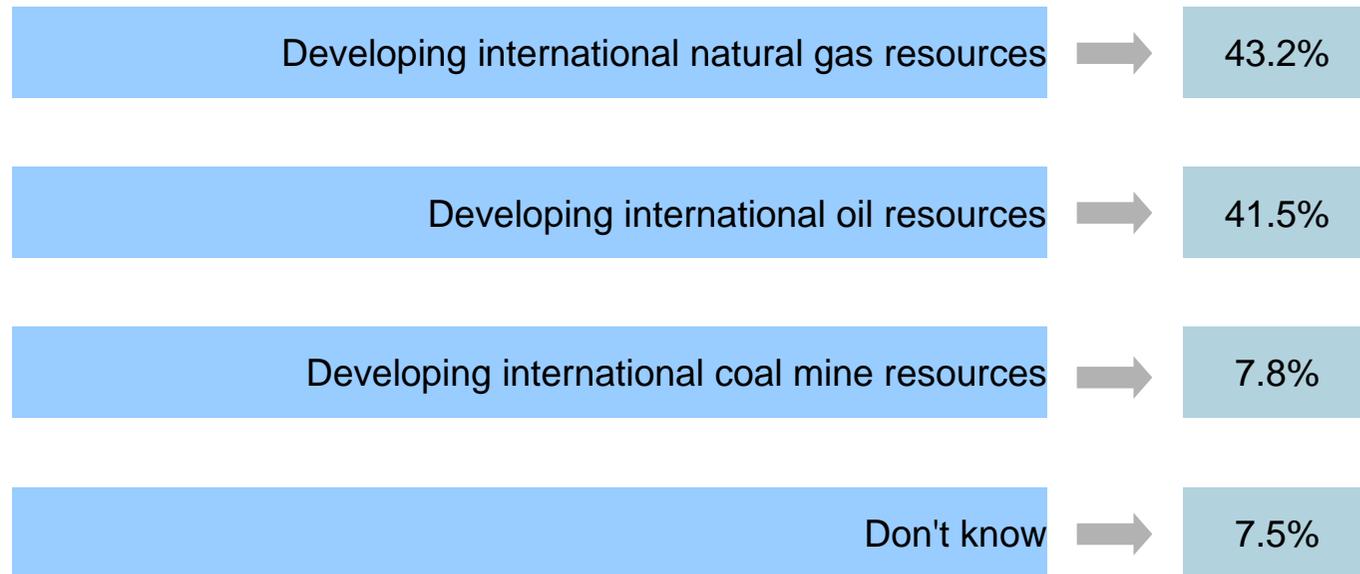


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3.2 Environmental & Energy Issues of Concern to Chinese Residents



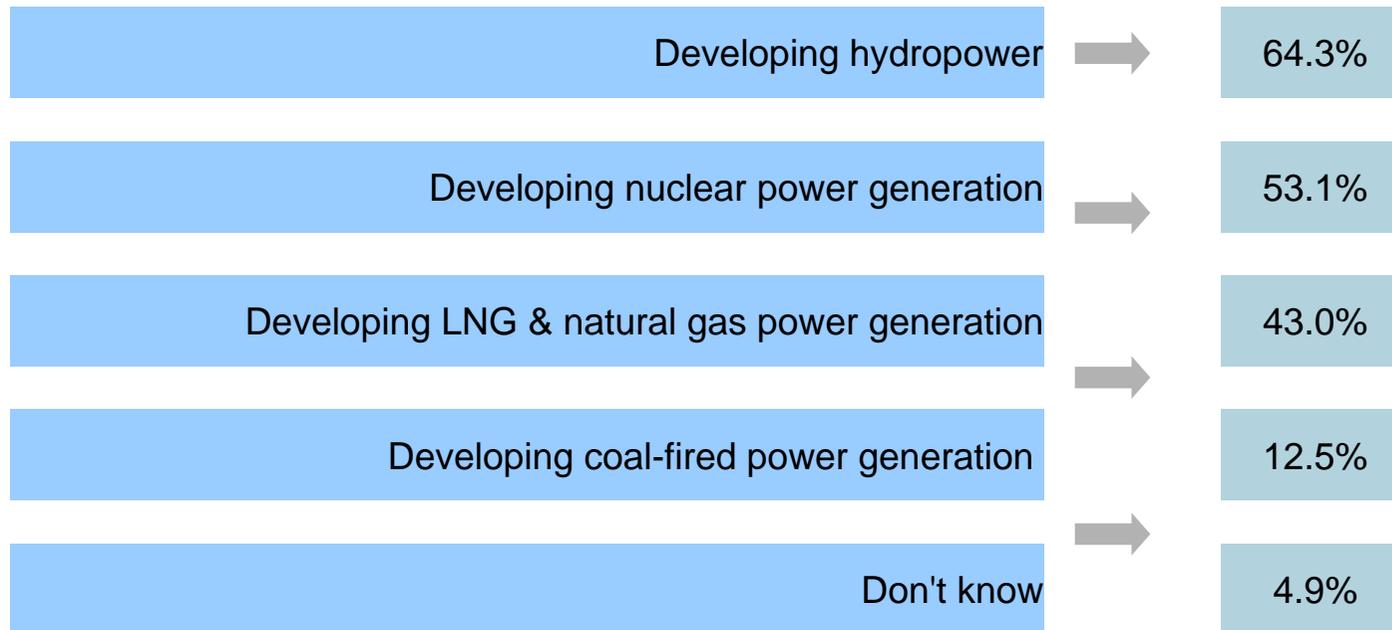
Most Important Issue in the Development of International Energy Resources



3.2 Environmental & Energy Issues of Concern to Chinese Residents



Most Important Issue in Increasing Power Supply

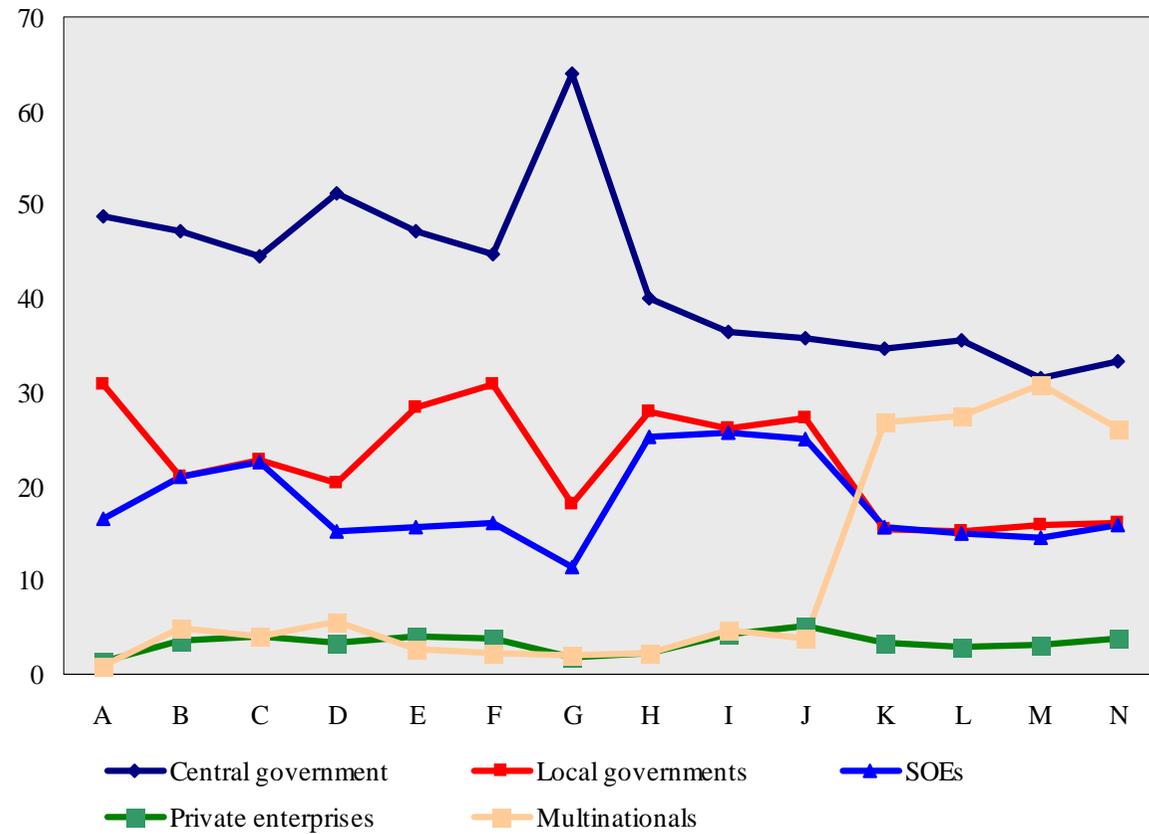


Note: It is a multiple-choice question. The sum of response percentage exceeds 100%.

3.3 Attribution of Responsibility for Energy Development & Equipment Maintenance



- ❖ The central government is perceived as the party mainly responsible for energy development and equipment maintenance, especially energy development, multinationals are deemed to play an important role in the development of transportation pipelines for energy sources and shipping, private enterprises do not have high confidence in energy development or equipment maintenance.



A: Developing domestic coal resources
 B: Developing domestic oil fields
 C: Developing domestic natural gas fields
 D: Strategic reserves of crude oil and raw materials
 E: Building hydropower stations

F: Building wind power stations
 G: Building nuclear power stations
 H: Transportation of domestic coal
 I: Building of domestic oil pipelines
 J: Building of domestic natural gas pipelines

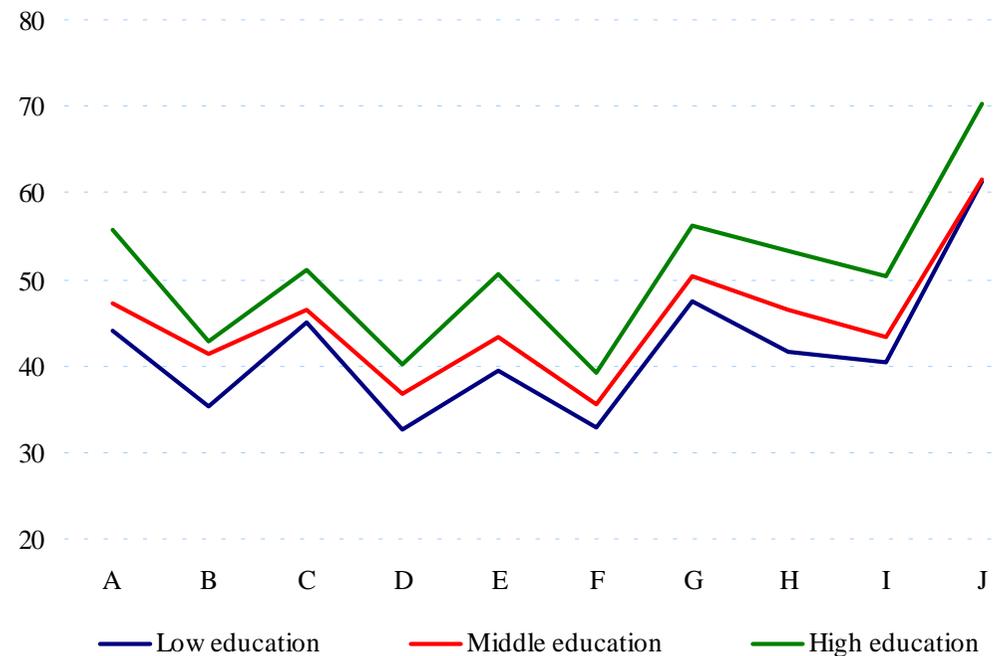
K: Shipping of coal from coal-exporting countries to China
 L: Building of oil pipelines from oil-exporting countries to China
 M: Building of gas pipelines from natural gas-exporting countries to China
 N: Gasification treatment of natural gas and shipping of natural gas from exporting countries to China
 O: Developing foreign oil fields

3.3 Attribution of Responsibility for Energy Development & Equipment Maintenance



Attribute the responsibility to the central government

❖ The more highly educated people are, the more likely they are to attribute the responsibility for the development, transportation and reserving of domestic energy resources as well as building of power plants to the central government.



- A: Development of domestic coal mines
- B: Railway transportation and shipping of domestic coal mines
- C: Development of domestic oil fields
- D: Development of domestic oil pipelines
- E: Development of domestic natural gas fields

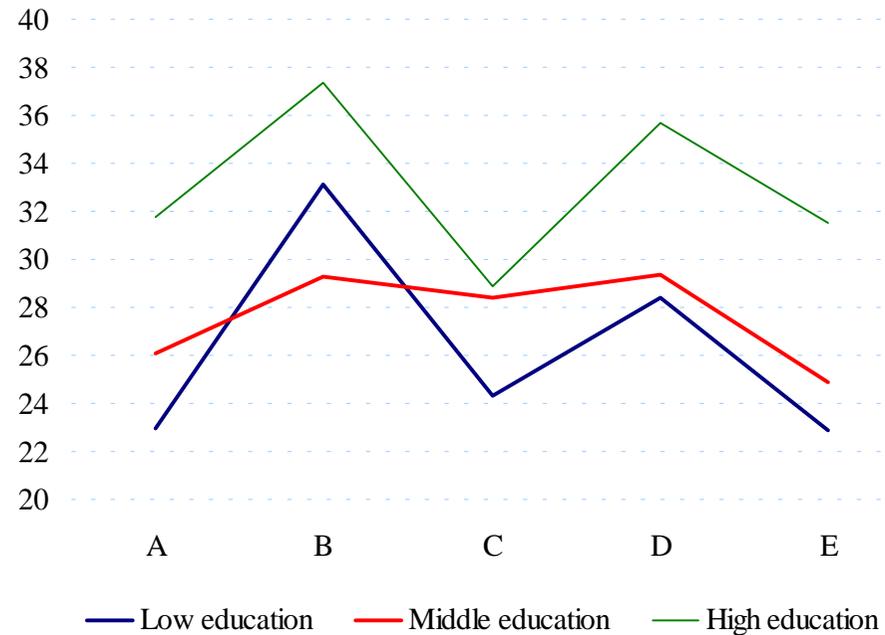
- F: Development of domestic natural gas pipelines
- G: Strategic reserves of crude oil and raw materials for energy shortage
- H: Development of hydropower plants on Chinese rivers
- I: Development of wind power plants in China
- J: Development of nuclear power plants in China

3.3 Attribution of Responsibility for Energy Development & Equipment Maintenance



Attribute the responsibility to the multinationals

- ❖ The more highly educated people are, the more likely they are to attribute the responsibility for the shipping of energy sources and building of pipelines from other countries to China to multinationals

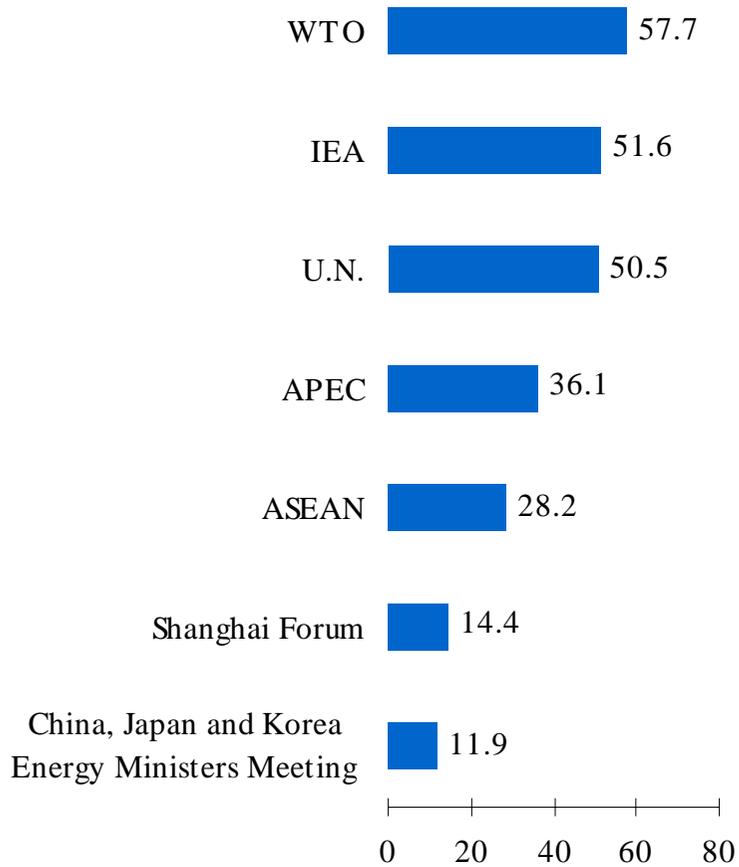


- A. Shipping from coal exporting countries to coal mines in China
- B. Development of oil fields in other countries
- C. Development of oil pipelines from oil exporting countries to China
- D. Development of pipelines from natural gas exporting countries to China
- E. Gasification of natural gas & shipping from natural gas exporting countries to China

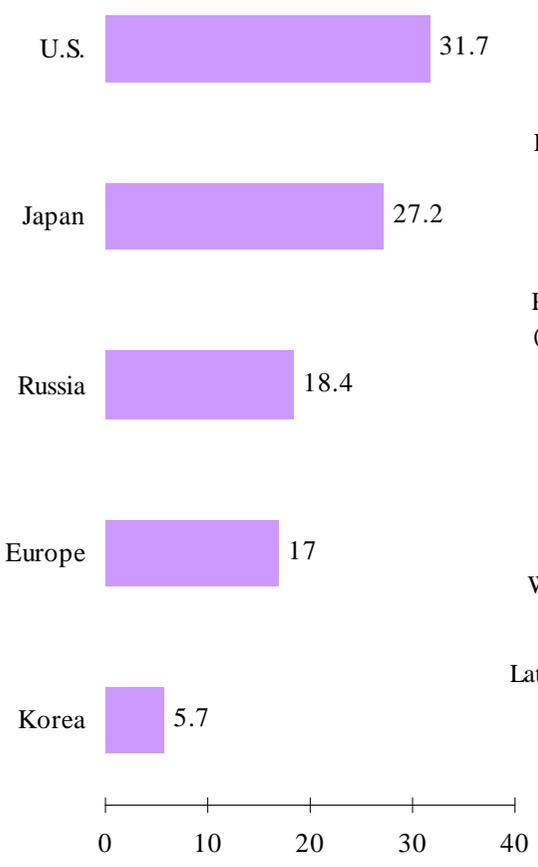
3.4 International Cooperation on Energy Issues



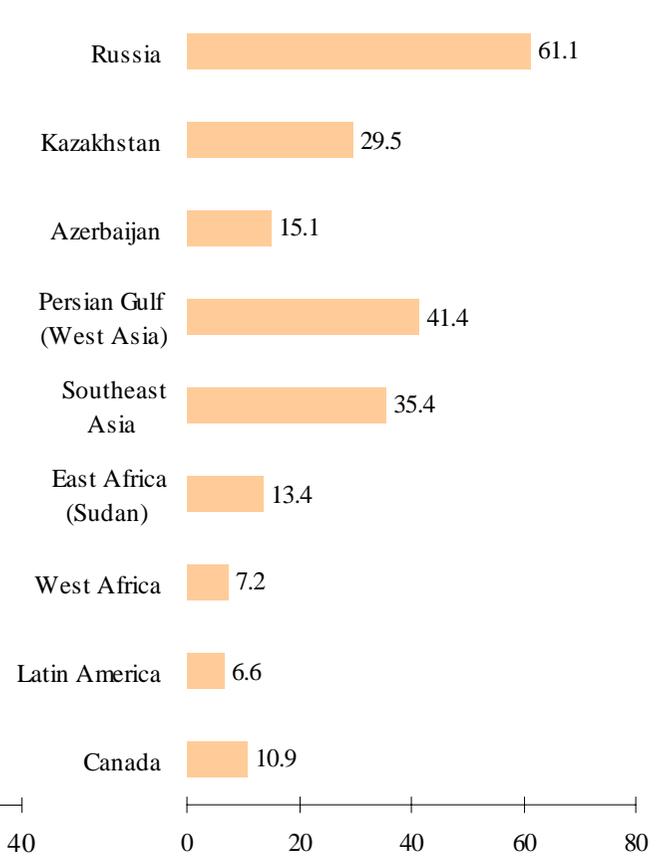
Chinese residents endorse international organizations more than they do regional organizations



Countries playing an important role for China on energy issues



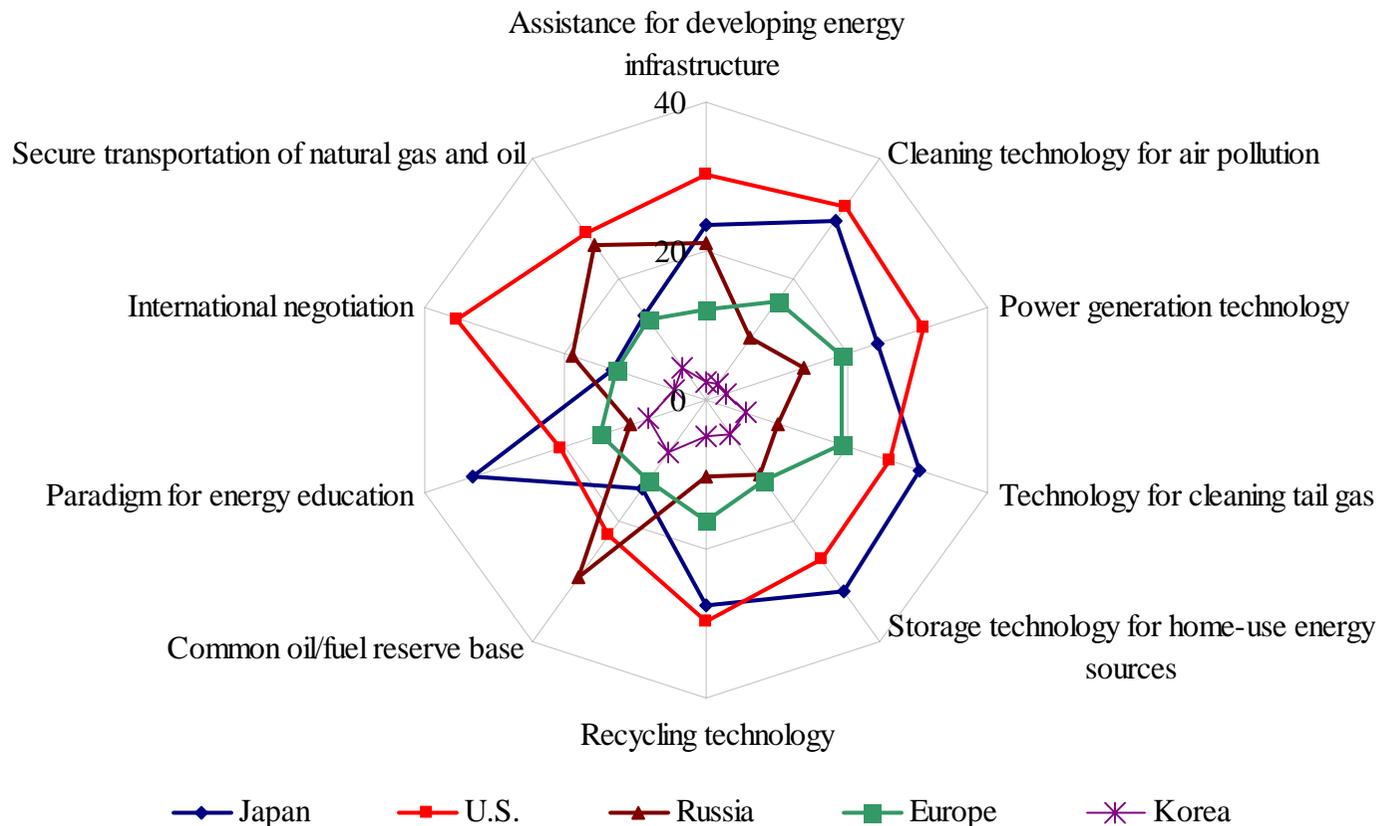
Important oil suppliers for China





3.4 International Cooperation on Energy Issues

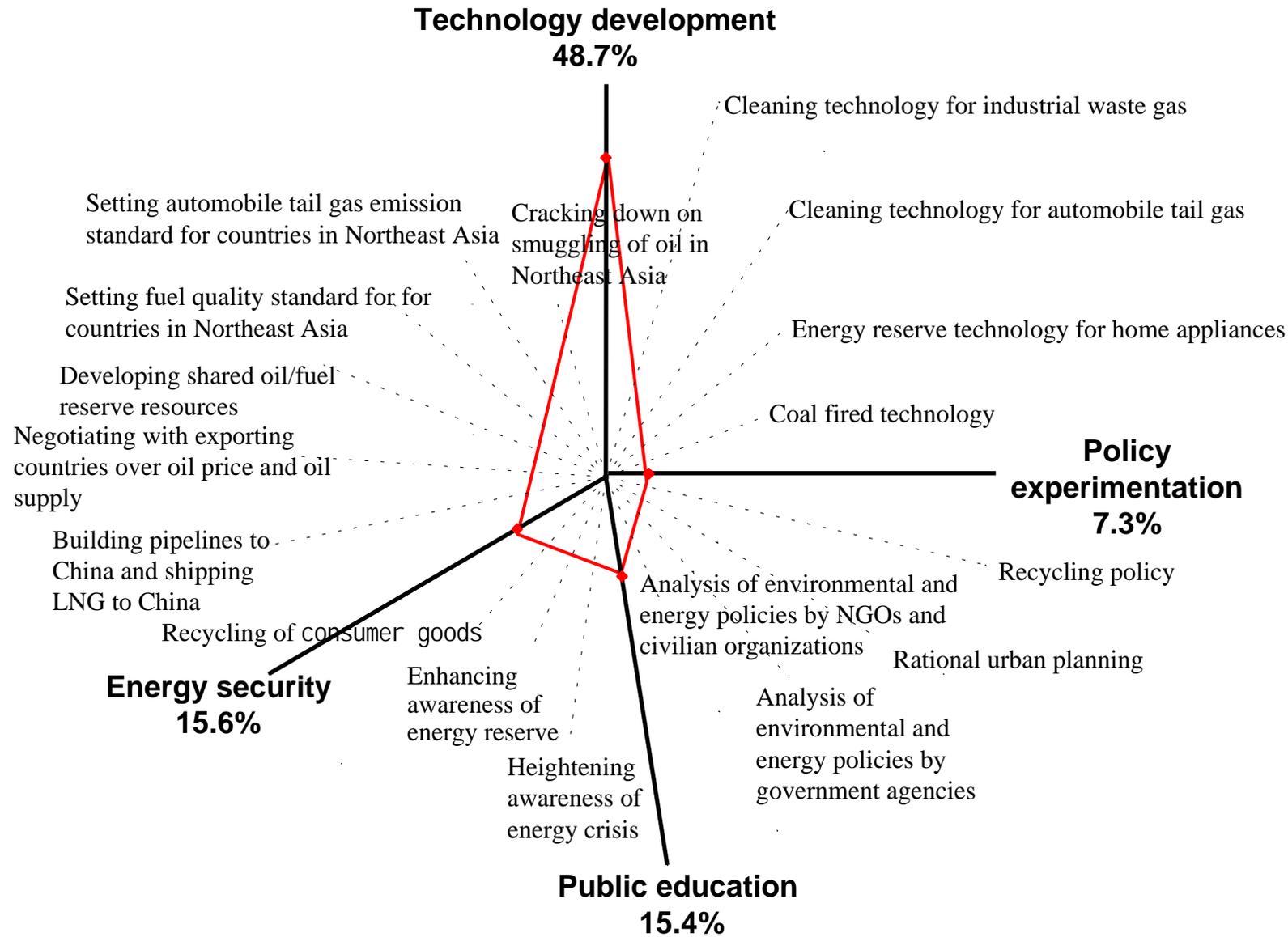
- ❖ The U.S. is deemed to play the most important role in providing assistance for China in the development of energy infrastructure, power generation technology and international negotiations; Japan is deemed to play the most important role for China in tail gas treatment, storing home-use energy sources and energy education; Russia is deemed to be the most important common oil/fuel reserve base for China.



3.5 Sino-Japanese Cooperation in Energy Development



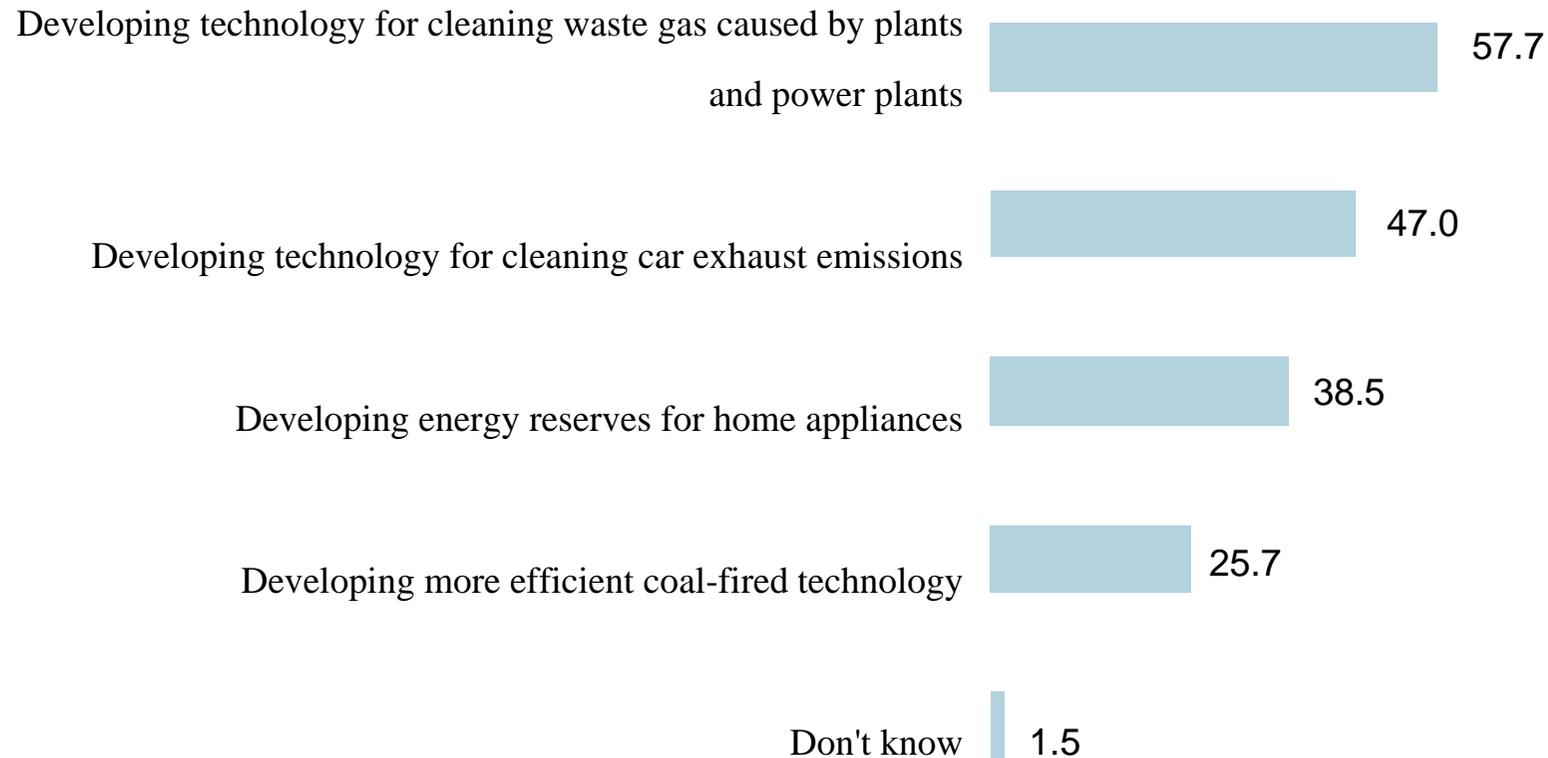
❖ China and Japan should strengthen cooperation in energy technology, especially the treatment of industrial waste gas and automobile tail gas.



3.5 Sino-Japanese Cooperation in Energy Development



Most Important Area of Sino-Japanese Cooperation in Technology Development in the Field of Energy Sources

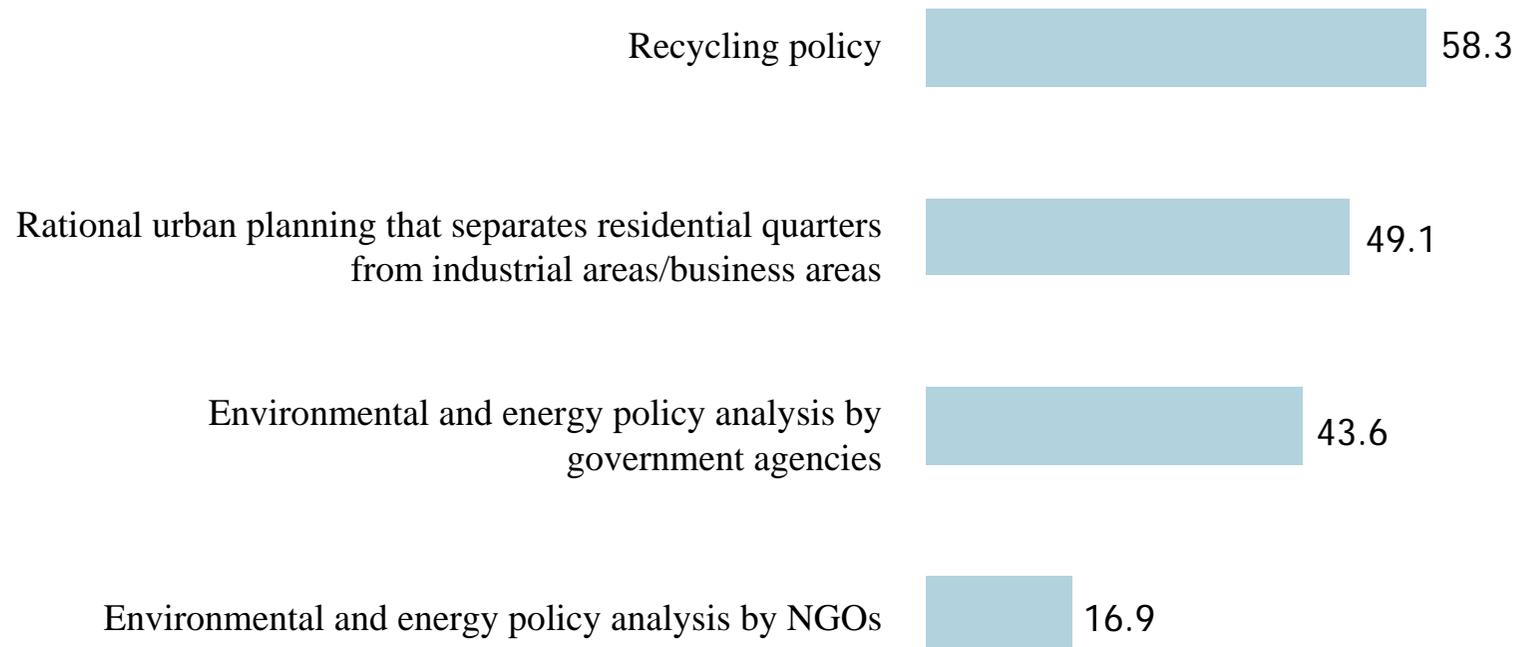


Note: It is a multiple-choice question. The sum of response percentage exceeds 100%.

3.5 Sino-Japanese Cooperation in Energy Development



Most Important Area of Sino-Japanese Cooperation in Experimentation of Energy Policy

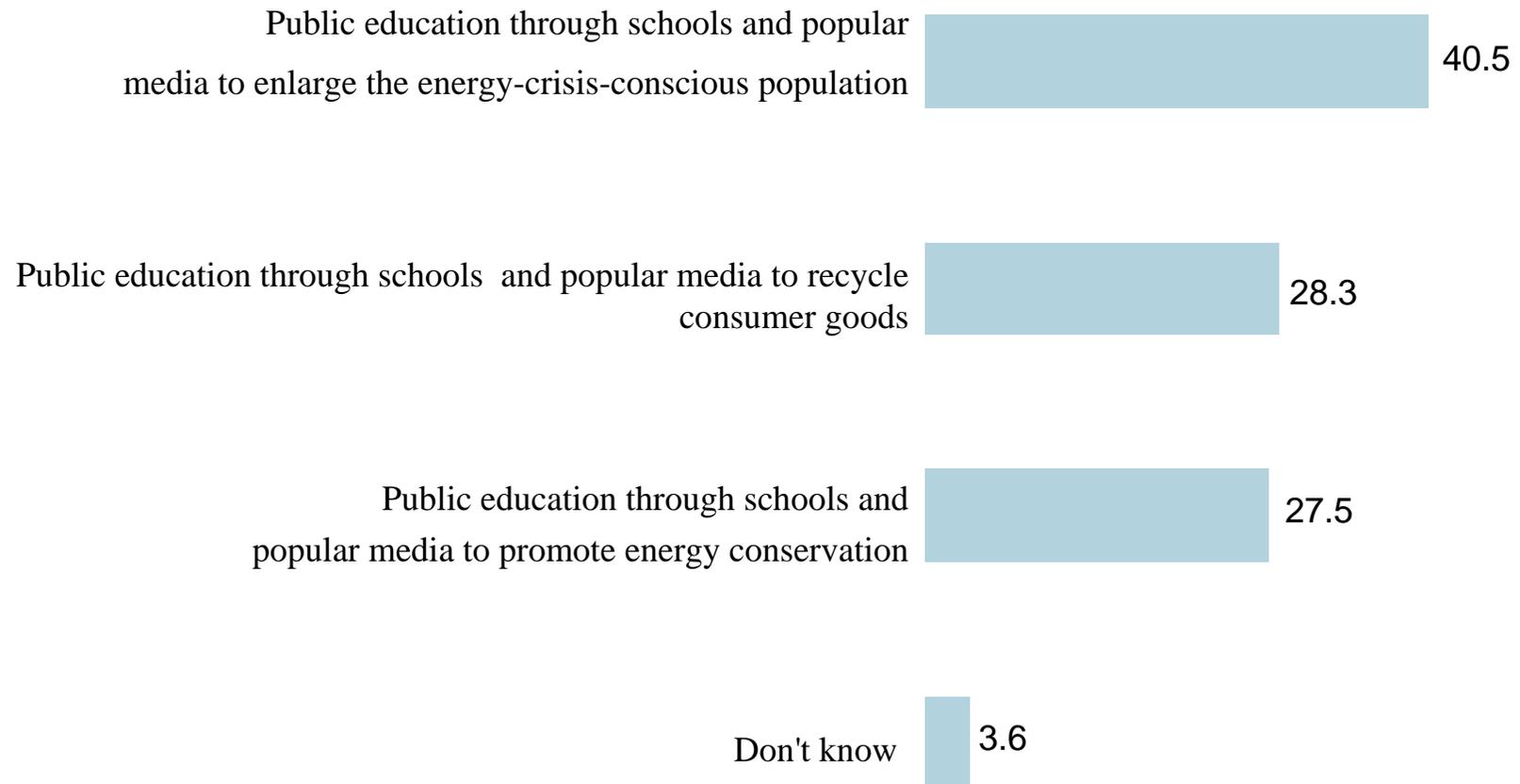


Note: It is a multiple-choice question. The sum of response percentage exceeds 100%.

3.5 Sino-Japanese Cooperation in Energy Development



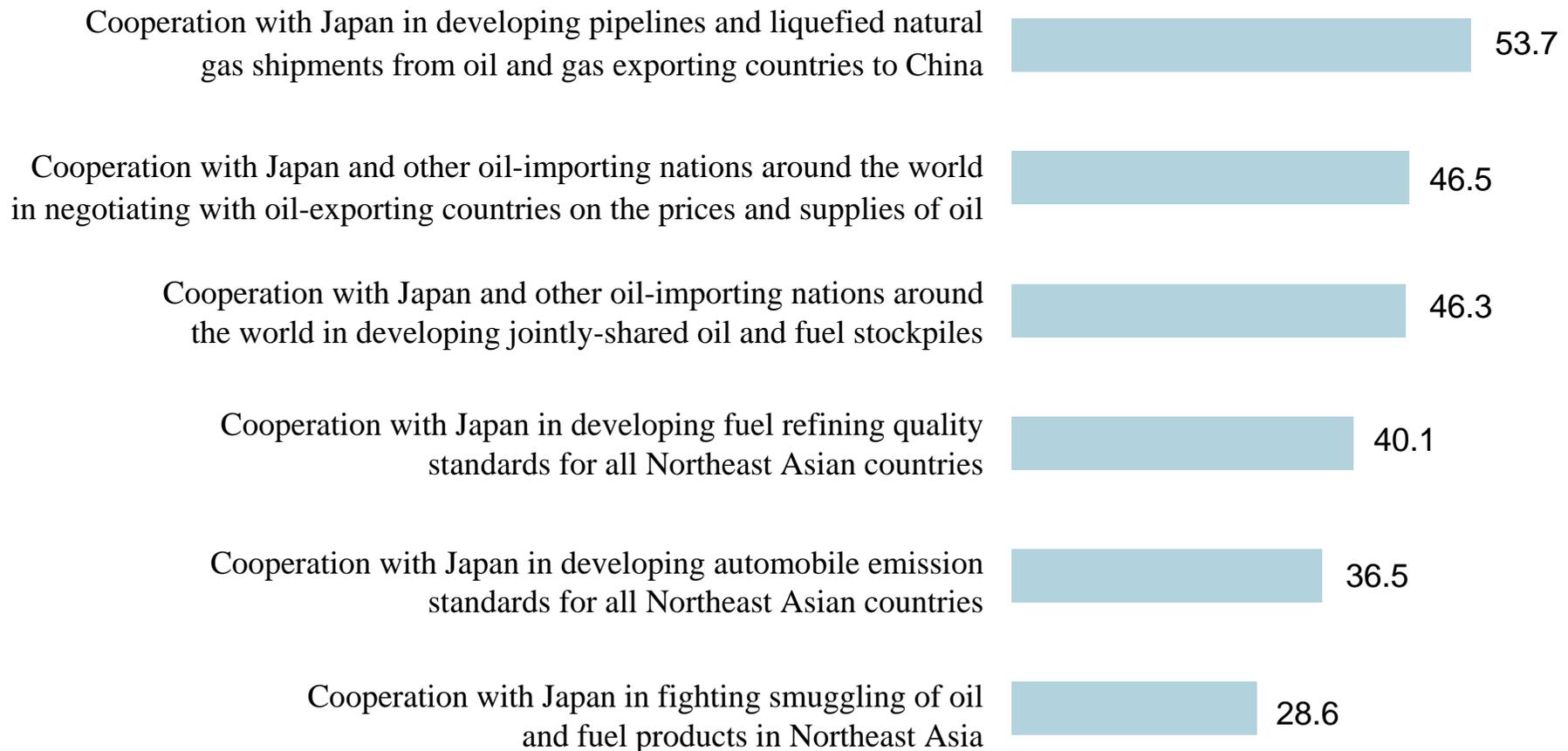
Most Important Area of Sino-Japanese Energy Cooperation in Public Education



3.5 Sino-Japanese Cooperation in Energy Development



Most Important Area of Sino-Japanese Cooperation in Energy Security

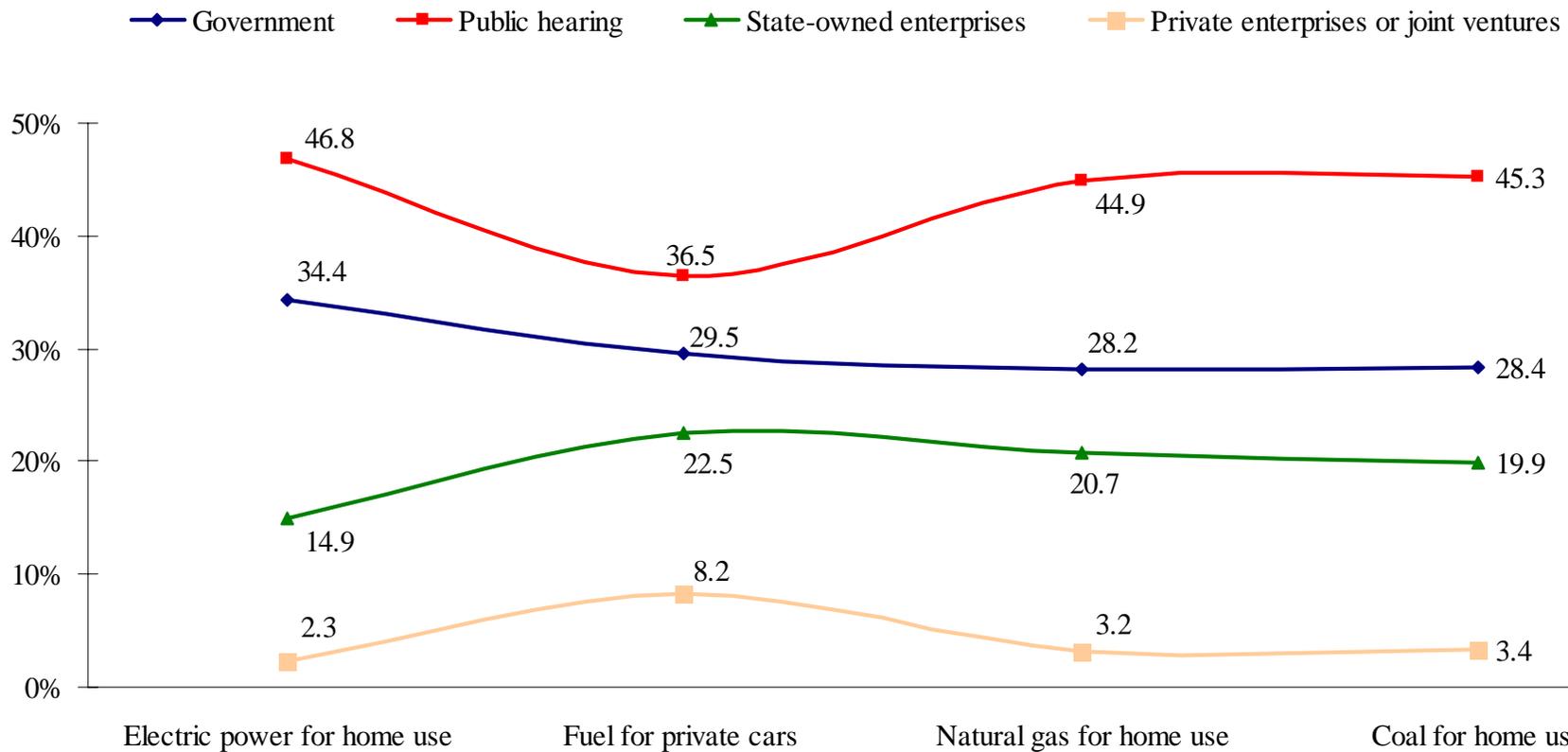


Note: It is a multiple-choice question. The sum of response percentage exceeds 100%.

3.6 Energy Pricing



❖ Chinese residents expect a public hearing mechanism with high participation will be established for energy pricing, especially energy sources for home use.



3.6 Energy Pricing



- ❖ On the issue of energy pricing, people with low education tend to trust the central government, while the highly educated prefer public hearings.

	Pricing by the government (%)		Pricing through public hearing (%)	
	Low education	High education	Low education	High education
Electric power for home use	38.7	35.7	42.2	49.2
Fuels for private cars	33.1	27.1	37.7	40.1
Natural gas for home use	30.8	27.7	44.0	50.2
Coal for home use	32.7	26.9	43.1	50.4

3.6 Energy Pricing



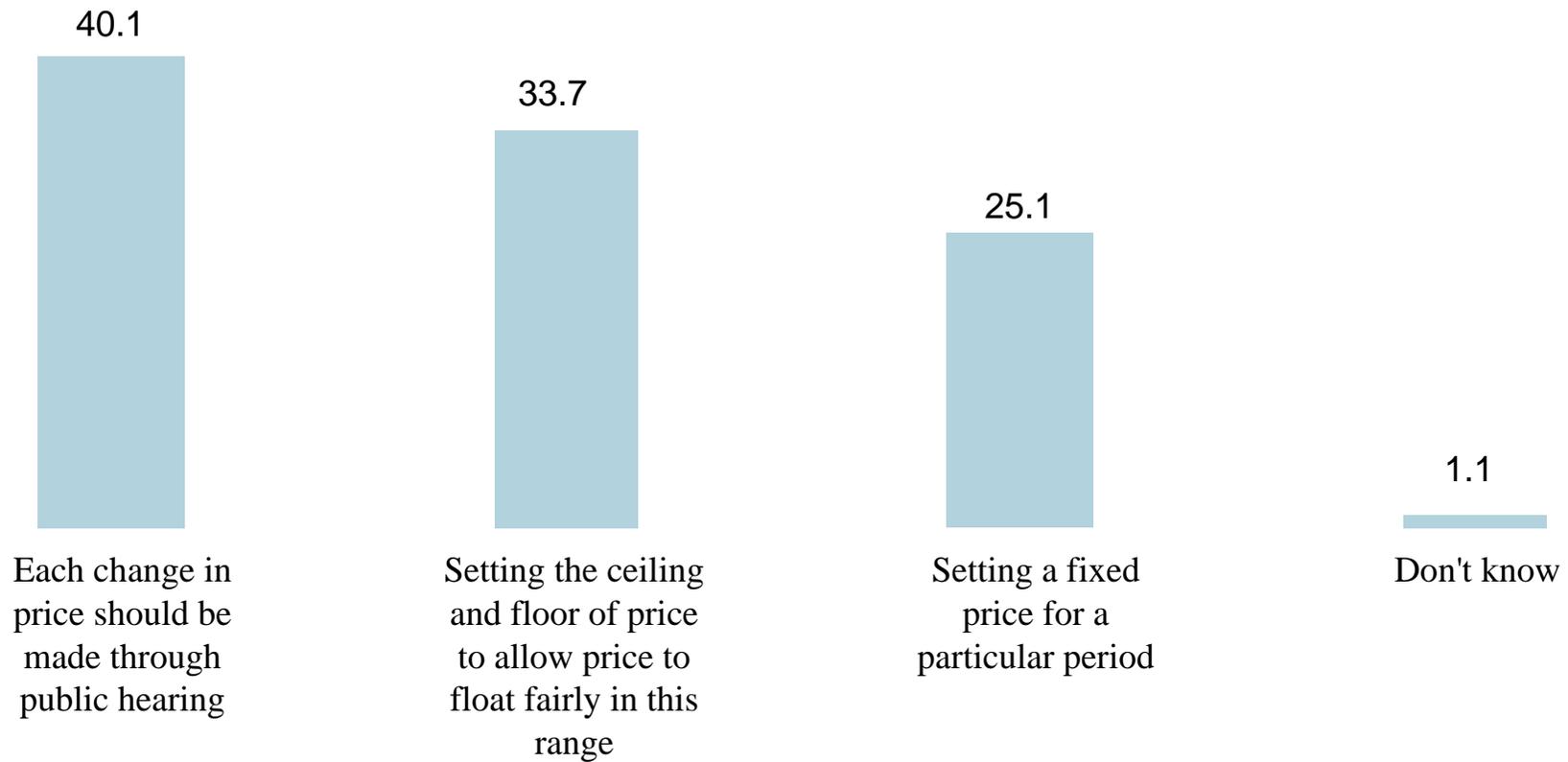
- ❖ On the issue of energy pricing, those with low income prefer the central government, while those with high income prefer public hearings more.

		Low income	Lower middle income	Middle income	Upper middle income	High income
Electric power for home use	Pricing by the government	32.8	36.1	27.2	35.7	33.1
	Pricing through public hearings	48.8	45.9	55.9	46.6	56.4
Fuels for private cars	Pricing by the government	30.1	30.7	24.9	19.3	30.0
	Pricing through public hearings	34.0	39.7	38.3	32.3	45.2
Natural gas for home use	Pricing by the government	29.4	26.3	24.6	27.4	16.0
	Pricing through public hearings	42.9	46.7	48.8	45.6	64.7
Coal for home use	Pricing by the government	30.2	27.8	22.0	35.9	23.7
	Pricing through public hearings	41.1	49.8	48.7	40.4	62.3

3.6 Energy Pricing



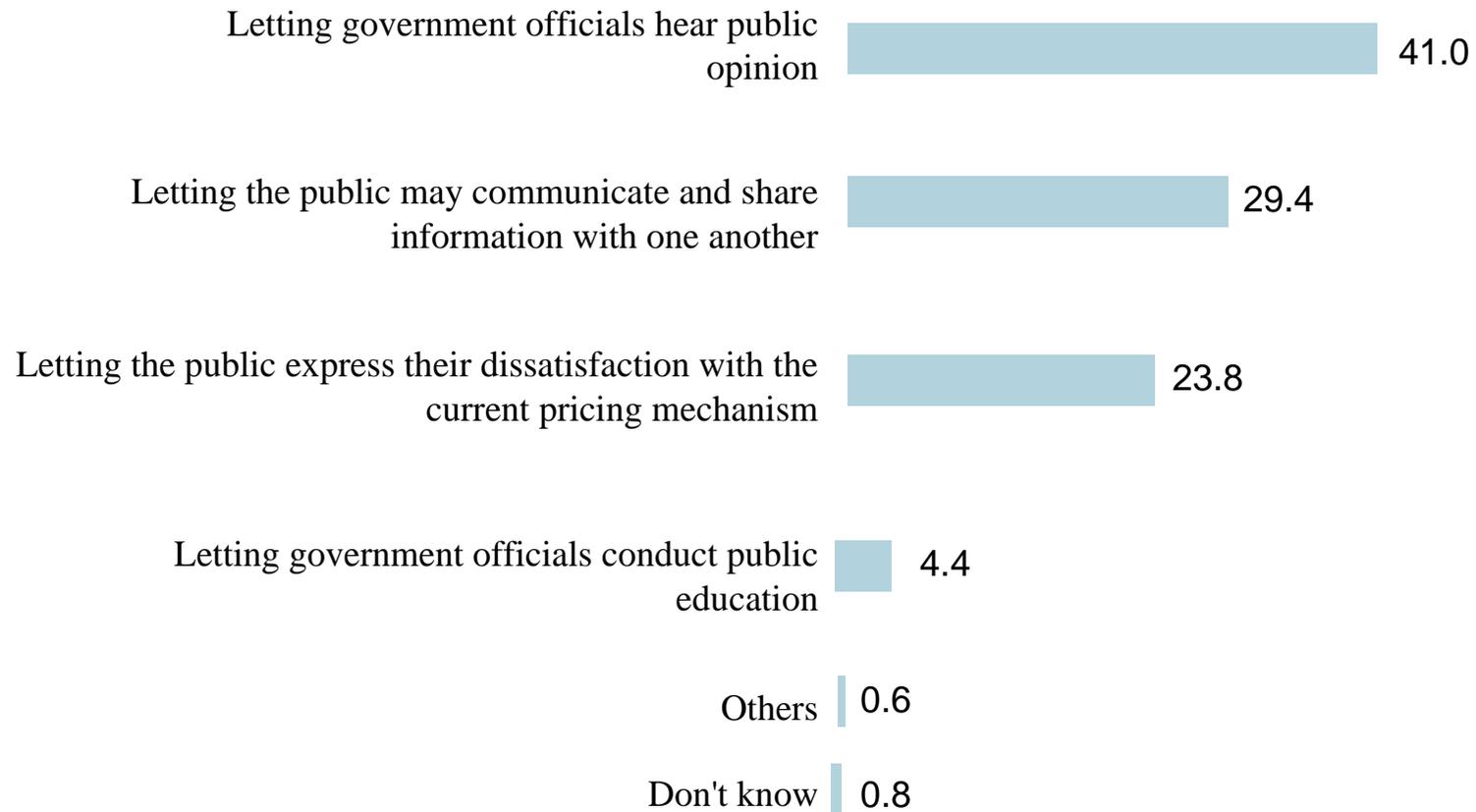
How to Set Price for Energy Sources through Public Hearings



3.6 Energy Pricing



Reasons for Advocating Energy Pricing through Public Hearings



3.6 Energy Pricing



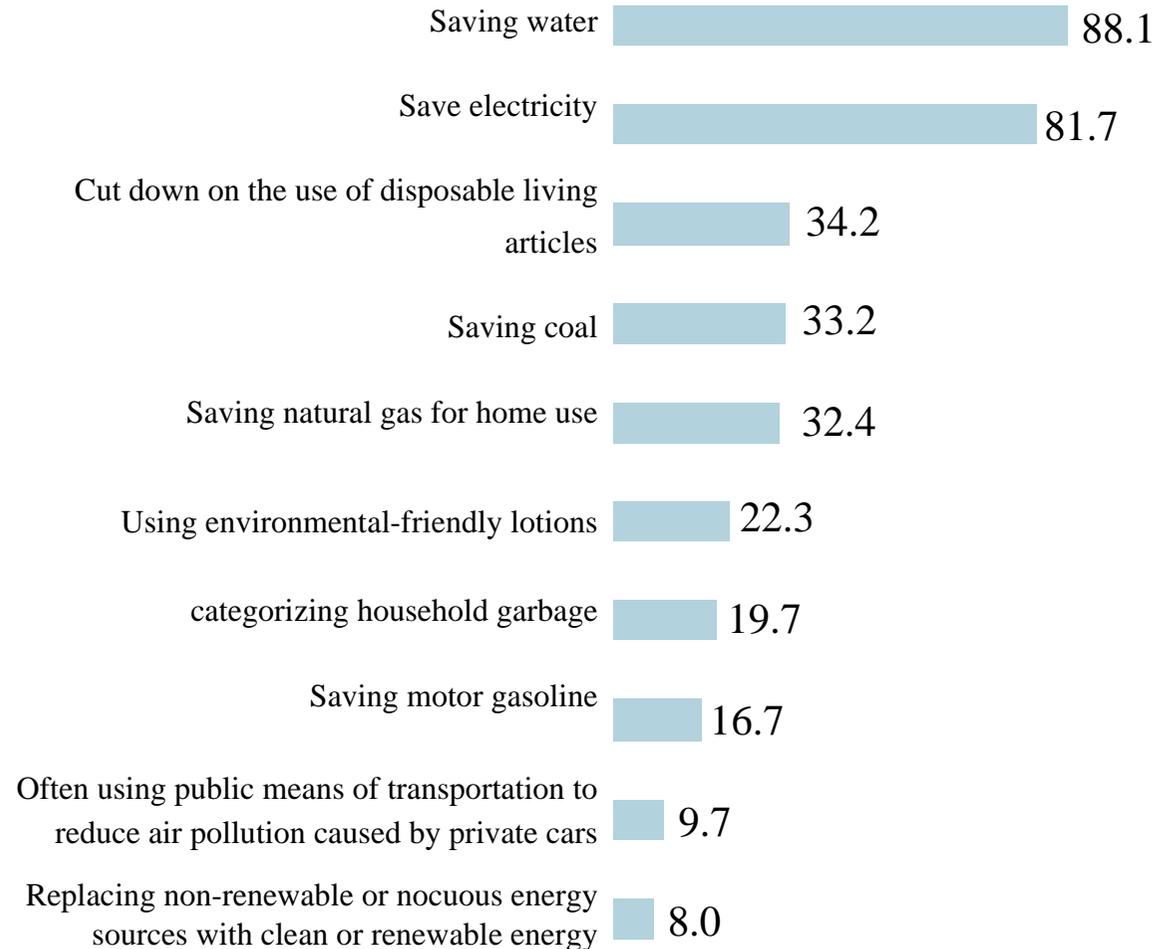
Comparison of Those with Private Cars and Those without Private Cars in their Viewpoint concerning Energy Pricing for Private Cars

	Car owners	Non-car owners
By the government	18.5	29.9
Through public hearings	46.5	36.2
By state-owned energy enterprises	23.4	22.5
By private enterprises and joint ventures	11.5	8.1
Refuse to reply	0	.4
Don't know	0	3.0
Total	100.0	100.0

3.7 Chinese Residents' Environmental Protection & Energy-Saving Habits



❖ Urban residents have good water-saving and power-saving habits. However, it is necessary to further cut down on the use of disposable living articles, promote the use of environmental-friendly lotions and further enhancing the habit of categorizing household garbage.





Conclusions

- Chinese urban residents' awareness of energy crisis is not as strong as their awareness of environmental protection. Those with strong awareness of energy crisis are mostly highly-educated young men with high income, while old women with low education and low income do not have strong awareness of energy crisis.
- Chinese urban residents perceive the central government as the party mainly responsible for energy development and equipment maintenance, especially energy development, while multinationals are deemed to play an important role in the development of transportation pipelines for energy sources and shipping. The privatization of the energy industry is still in the embryonic stage in China. It is necessary to boost the public confidence in private enterprises in the area of energy development and equipment maintenance.
- When it comes to addressing energy issues, Chinese residents endorse international organizations instead of regional ones. The U.S. is deemed to be of the greatest importance to China on energy issues, esp. in international negotiation and provision of assistance for energy infrastructure; Japan is deemed to play the most important role for China in tail gas treatment, storage technology for home-use energy sources and energy education; Russia is deemed to an important common energy reserve base for China.
- At present, energy price is largely controlled by the government. The public hopes that energy management and price mechanism with higher participation by the public will be established.

5.1 Time Frame for Project Implementation & sample Distribution



Time frame for project implementation

The project was implemented from May 20-May 23, 2004.

Distribution of samples implemented in the survey cities

	Prior to weighted analysis		After weighted analysis	
	Sample size	Percentage in the total	Sample size	Percentage in the total
Beijing	305	13.8	476	21.5
Shanghai	315	14.2	606	27.4
Guangzhou	301	13.6	281	12.7
Wuhan	316	14.3	278	12.6
Chengdu	327	14.8	161	7.3
Shenyang	320	14.5	242	10.9
Xi'an	327	14.8	167	7.6
Total	2211	100.0	2211	100.0

5.2.Respondents' Background Characteristics



Sex		
	Frequency	%
Men	926	41.9
Women	1285	58.1
Total	2211	100.0

Age		
	Frequency	%
Young people(16-35)	883	40.0
Middle-aged people(36-50)	952	43.1
Old people(51-60)	369	16.7
Not answered	7	.3
Total	2211	100.0

5.2. Respondents' Background Characteristics



Educational background		
	Frequency	%
Low education (junior high school and below)	573	25.9
Middle education (high school)	1010	45.7
High education (2-year college or above)	622	28.1
Refuse to reply/Don't know	6	.3
Total	2,211	100.0

Personal monthly income		
	Frequency	%
Low income (below 1,000 yuan)	383	17.3
Lower middle income (1,001-2,000 yuan)	589	26.6
Middle income (2,001-30,000 yuan)	222	10.0
Upper middle income (3,001-5,000 yuan)	100	4.5
High income (5,001 yuan and above)	18	.8
No fixed income	18	.8
Retirees, the laid-off/unemployed/jobless, students, army men & housewives	866	39.1
Refuse to reply	16	.7
Total	2,211	100.0

5.2.Respondents' Background Characteristics



Occupation		
	Frequency	%
Management staff	97	4.4
General clerks/employees	726	32.8
Service staff	188	8.5
Farmers/forestry workers/mine workers	35	1.6
Freelancers	70	3.2
Self-employed people	213	9.7
Retirees	309	14.0
The laid-off /jobless/unemployed	244	11.0
Students	219	9.9
Housewives	87	3.9
Others	14	.7
Refuse to reply	9	.4
Total	2211	100.0

5.3 Verification



Examination of questionnaire

When copies of the questionnaire were recovered, the project supervisor examined them thoroughly. If omissions or logic errors were found, they were made up by phone or offset with redundant samples.

Verification by phone

Interviews were verified by phone according to the phone number provided on the first page of each copy of the questionnaire. The percentage taken up by copies of questionnaire verified took up more than 25%.

Verification

The quality of interview is verified for the coding of open-ended questions in the questionnaire.

After questionnaire data was entered into the database, the quality of interviews was checked through error checking and verification by phone. Copies of questionnaire with high error rate were deleted.

Code verification

Checking and verification by computer

The End



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