



Research report

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I Introduction

Fig.1 Distribution of NPPs in China(up to January 11, 2019)

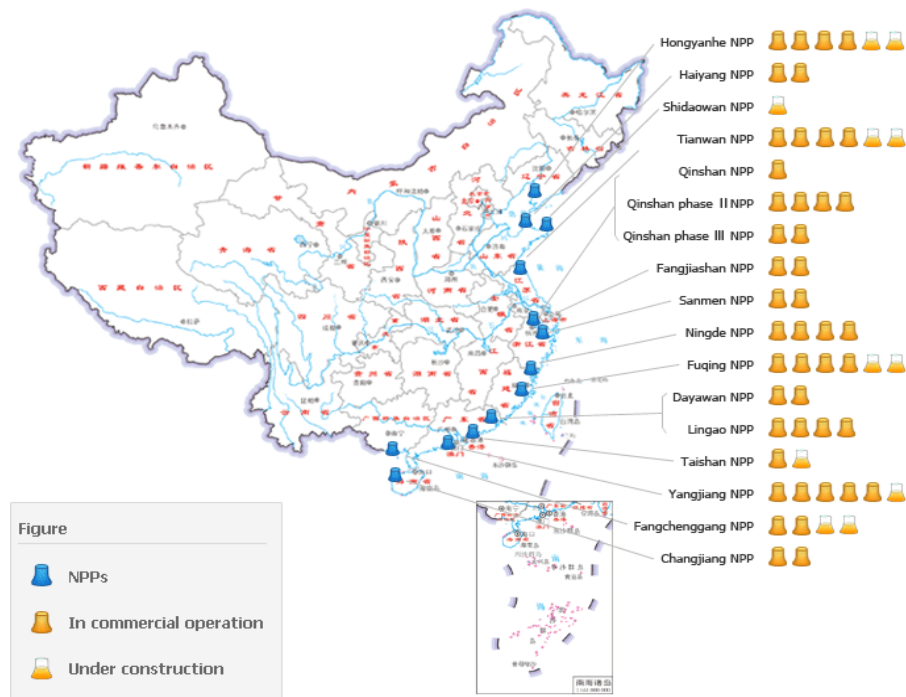


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The development of nuclear energy and technology is often accompanied by high public concern. With the steady progress of nuclear power construction in China, the development of nuclear technology application, the improvement of public awareness and the increasing attention to environmental safety issues, nuclear safety has attracted more and more public attention, and public acceptance has become an important factor affecting the development of nuclear power. Through questionnaires, this paper tries to analyze the current situation and characteristics of public attitudes towards nuclear energy and technology, so as to put forward suggestions for relevant government departments and nuclear power operators, in order to promote the correct understanding of nuclear safety and improve public acceptance of nuclear energy.

II Existing findings

Before starting the questionnaire, we have consulted the literature about public attitudes to nuclear technology and nuclear energy. There are many papers about this topic, it's also the hot topic of debate in society. For example, China National Nuclear Corporation Jiangmen Longwan Nuclear Fuel Industrial Zone in Guangdong Province, preparations for the project went well but were eventually cancelled due to strong public opposition. Before putting into operation in 2007, a questionnaire survey was conducted in 27 villages and communities within 0-30 km of the Tianwan Nuclear Power Station in Jiangsu Province. The results show that public worries about nuclear energy and its impact are widespread. When there are alternative sources of energy, most people choose other sources of energy rather than nuclear

power. In June 2010, Hong Kong and some mainland media reported the Daya Bay nuclear power plant fuel element crack (slight damage) incident. Because of misunderstanding or inadequate information, the report was false and there was some exaggeration. Afterwards, Southern Weekend jointly conducted a survey on "public attitudes towards nuclear power" by Tencent. A total of 50 672 votes were received.

In this survey, more than half of the people who have doubts about the development of nuclear power are strongly opposed to nuclear power at home. Most of the people are most worried about the occurrence of nuclear accidents. More than half of the people think that the propaganda of the government is not credible enough and that public participation has not played an effective role.

III Our findings

Based on the above questionnaire, we also run our own public survey. Considering the urgency of investigation time, and expanding the scope of investigation as far as possible, we posted questionnaires on the Internet. The questions and results we investigated are shown in the table below.

Tab.1 The investigation results of the public attitudes to nuclear power and technology

Questions and options	Percentage/%
What is your current age?	
1-18 years old	3.41
18-25 years old	80.68
25-40 years old	10.23
40-60 years old	5.68
What is your occupation?	
government departments and institutions	4.55
enterprises	9.09
scientific research and education	5.68
freelance	1.14
students	78.41
others	1.14
What is your gender?	
Male	67.05
Female	32.95
What is your educational level?	
High school and below	3.41
Undergraduate(including Associate degree)	79.55
Master or above	17.05
Besides nuclear weapons such as atomic bombs, do you have any knowledge of nuclear science and technology?	
Know it well	17.05
Know something about it	44.32
Not really know	38.64

Do you know what a radiopharmaceutical is?	
Yes	29.55
No	35.23
Know something about it	35.23
Radiopharmaceuticals are radioactive drugs that can be used for diagnosis and therapy of diseases. Have you ever taken any radiopharmaceutical for medical diagnosis or treatment?	
Yes	7.95
No	57.95
Just heard of it.	34.09
Are radiopharmaceuticals produced in nuclear reactors or accelerators?	
nuclear reactors;	15.91
accelerators;	18.18
all	18.18
none	18.18
unclear	29.55
Do you think radiopharmaceuticals are harmful?	
Great hazards	21.59
minor hazards	67.05
harmless	3.41
unclear	7.95
Overall, do you strongly favor, somewhat favor, somewhat oppose, or strongly oppose the use of nuclear energy as one of the ways to provide electricity in your country?	
strongly favor,	31.82
somewhat favor,	57.95
somewhat oppose,	7.95
strongly oppose	2.27
What other nuclear-related applications have you learned about?	
X-ray/CT medical imaging	85.23
Radiotherapy of tumors	79.41
Irradiation sterilization	53.41
Radiation Modification of Materials	28.41
Space nuclear battery	32.95
C-14 dating Archaeology	56.82
Power generation in the nuclear plants	76.14
X-ray nondestructive inspection	47.73
radiopharmaceuticals	51.14

Based on the analysis of the survey data, it can be concluded that the current public's understanding, attitude and behavior towards nuclear power and nuclear safety are generally positive. The respondents were mainly students aged from 18 to 25. Most of them have bachelor degree or above. The respondents were from Jiangsu, Jiangxi, Shandong, Shanxi,

Henan, Hunan, Zhejiang, Inner Mongolia, Tianjin, Shanghai and other provinces and municipalities with different levels of development. Most of the respondents have gained some understanding about nuclear technology. Three types of nuclear technology applications that most respondents know include X-ray/CT medical imaging(85.23%)、Radiotherapy of tumors(79.41%)、Power generation in the nuclear plants(76.14%). The respondents were not fully aware of the production, use and hazards of radiopharmaceuticals. Students, as relatively high-level knowledge groups, tend to know nuclear-related knowledge well than the general public. But they don't know enough about the safety of nuclear power. Most of their knowledge comes from the Chernobyl and Fukushima nuclear accidents, so they are very worried about radiation and leakage from nuclear power plants.

IV recommendations

Public understanding of nuclear energy knowledge, transparency of information disclosure, government credibility and public participation are decisive factors in nuclear project management and decision-making.

With the continuous improvement of public voice, public attitudes are of vital importance to the development of nuclear energy and nuclear technology. In the future, this influence will only increase and remain unchanged. If not handled properly, it will become one of the most serious constraints to the development of nuclear power and nuclear technology.

So we should take some measures to improve public attitudes:

1. Strengthen science popularization and publicize the application of nuclear technology and energy in a more acceptable way through such activities as WNU Nuclear Olympiad. Make the public not only know the use of nuclear energy and technology through the introduction and description of nuclear accidents, so that reduce the public's fear of nuclear at the source.
2. Strengthen public communication, fully understand public opinions before the implementation of nuclear-related projects, ensure the public's right to know, comprehensively introduce the project overview, and prevent unnecessary panic among the public. After the project is put into operation, invite the public to visit and improve public participation.
3. Only by making information publicly available, establishing information feedback mechanism, making the public aware of all kinds of events in the operation of nuclear-related projects and not afraid of the public's doubts and supervision, can the public's trust in nuclear-related projects be further strengthened.

V References

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