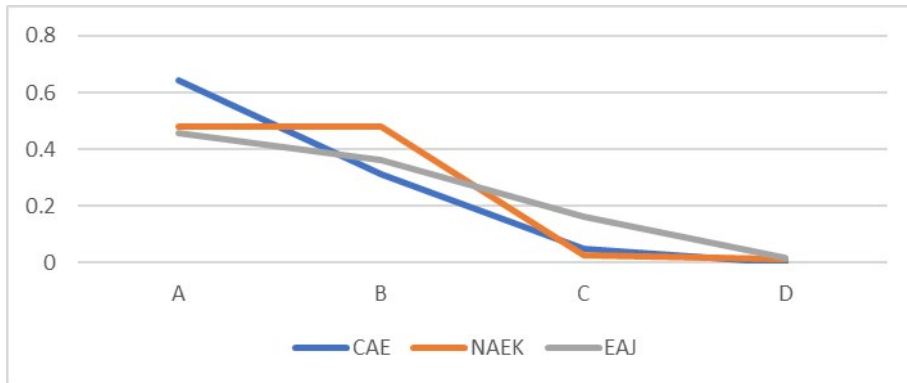


Part I: Survey on Cooperation Indicator

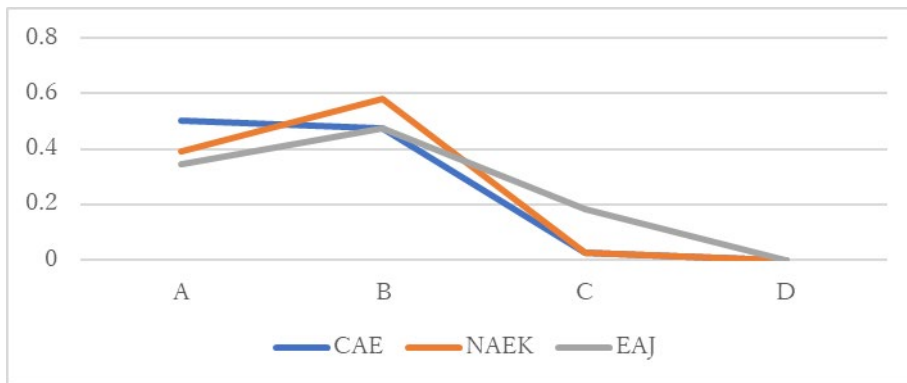
Q.1: Do you think technological cooperation is necessary among China, Japan, and Korea?

- A. Very necessary B. Necessary C. Neutral D. Unnecessary



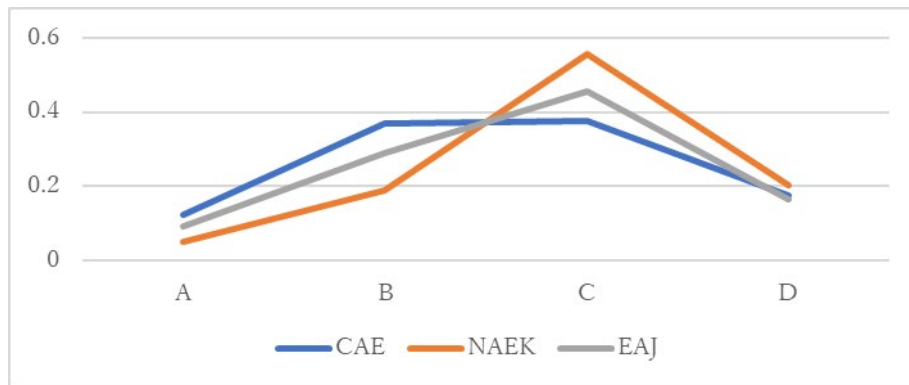
Q2: Do you think technological cooperation among China, Japan, and Korea would be mutually beneficial?

- A. Very beneficial B. Beneficial C. Somewhat unbeneficial D. Completely unbeneficial



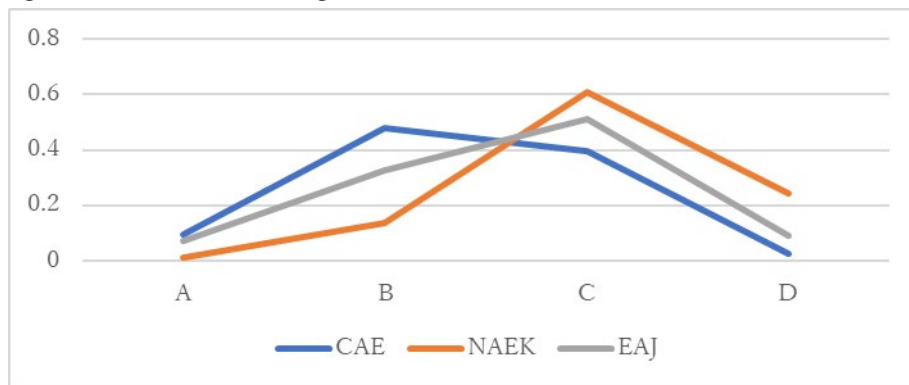
Q3: In terms of quantity, how would you evaluate the level of technological cooperation among China, Japan, and Korea?

- A. Very high B. Somewhat high C. Neutral D. Low



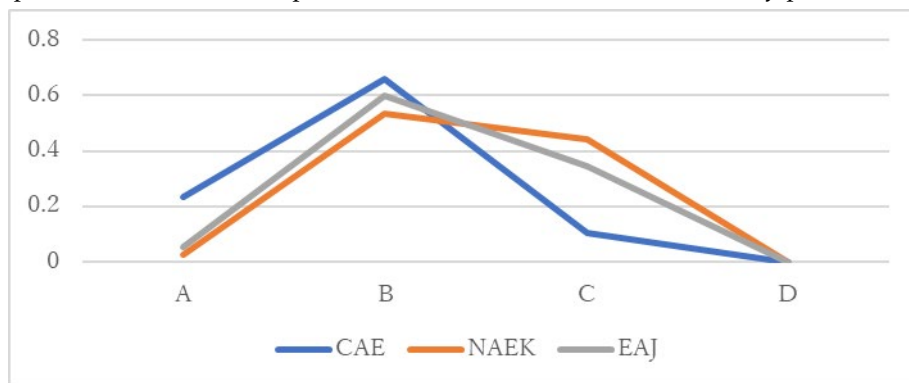
Q4: In terms of quality, how would you evaluate the level of technological cooperation among China, Japan, and Korea?

- A. Very high B. Somewhat high C. Neutral D. Low



Q5: What is your opinion on the future prospects for technological cooperation among China, Japan, and Korea?

- A. Very optimistic B. Optimistic C. Pessimistic D. Very pessimistic

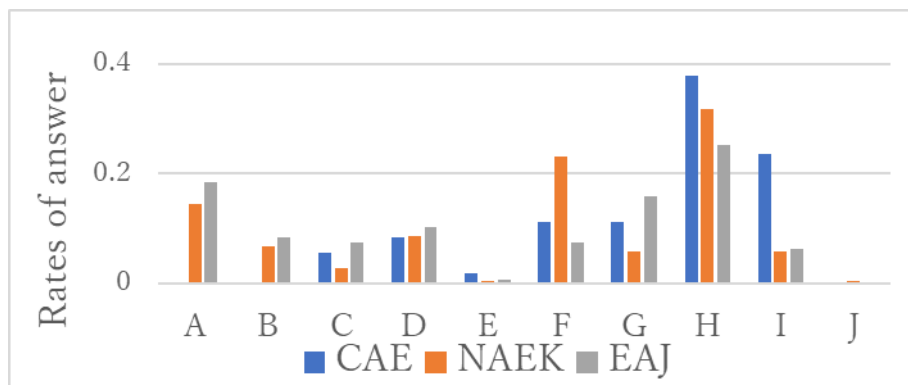


Comments on Part I: As usual years, trends of this part of the survey is almost same for 3 academies. All think the collaboration is necessary and beneficial. However, current state is not considered to be perfect, as it is shown in Q4. NAEK and EAJ members think we could do better. At the same time, all academies think future will be better as it is shown in Q5.

Part II: Fact-finding Survey

Q1: What areas do you believe you should focus on in terms of disaster prevention/mitigation technologies and disaster countermeasures in your country or the world today?

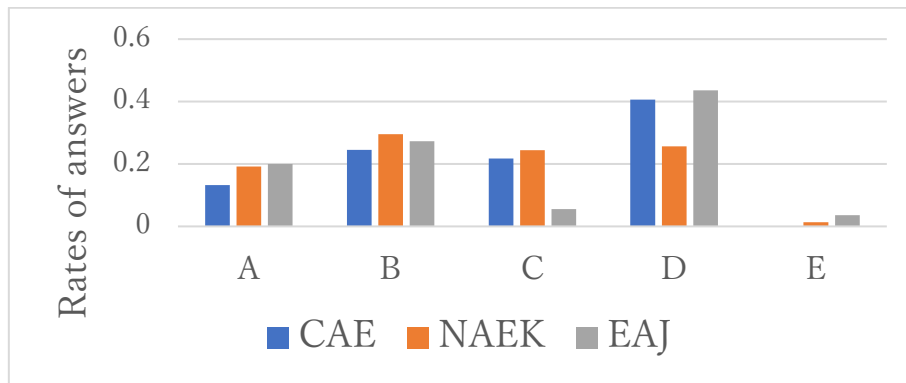
- A. Flood countermeasure technologies
- B. Storm surge and tsunami countermeasure technologies
- C. Sediment disaster countermeasure technologies
- D. Large-scale earthquake countermeasure technologies
- E. Volcanic disaster countermeasure technologies
- F. Technologies for handling droughts and water shortages
- G. Maintenance technologies for social infrastructures
- H. Global warming mitigation technologies
- I. Maintenance and restoration of the national landscape and natural environment
- J. Other



Comment on Q1: Situations of disaster can be different due to natural environment of each country. Therefore, focused areas are rather different. Among 3 academies, NAEK and EAJ seem to have some similarities. Except that, global warming mitigation is the largest and common concern for most of the respondents.

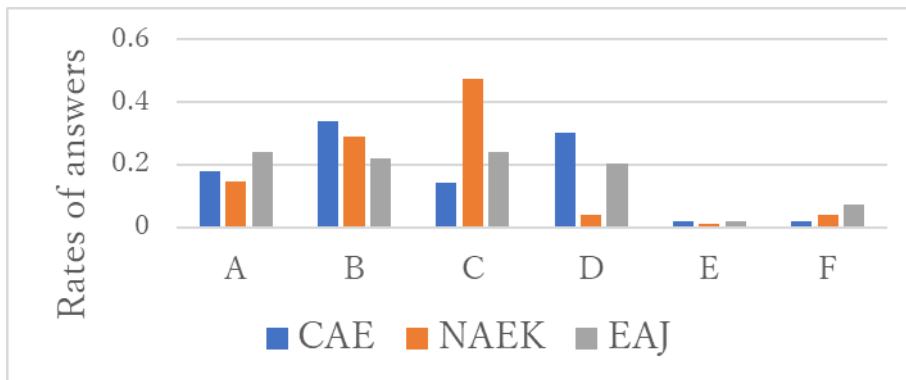
Q2: Which of the following do you believe is the most important field/technological area your country should focus on in terms of flood countermeasures?

- A. Meteorological and hydrological forecasting
- B. Countermeasures against river flooding
- C. Countermeasures against inland flooding
- D. Urban development, infrastructure development, etc.
- E. Other



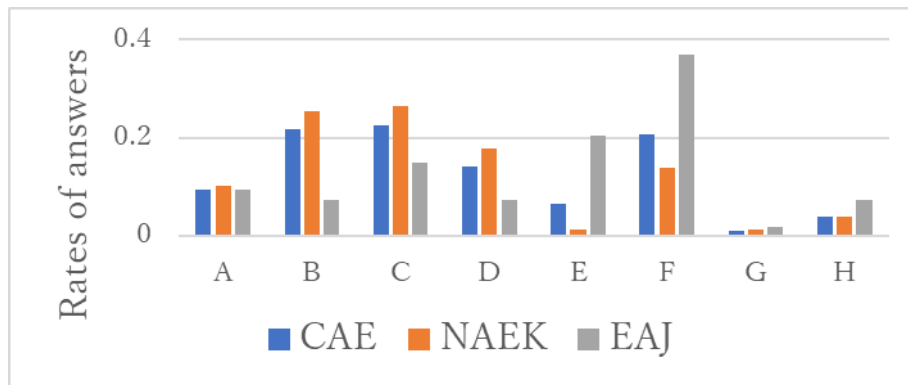
Q2-1. Select the one item from the following that you believe is the most suitable theme for joint efforts involving Japan, China, and South Korea in the field of meteorological and hydrological forecasting.

- A. Predicting rainfall
- B. Predicting typhoon course and strength
- C. Detailed weather observations
- D. Prediction-based methods for issuing evacuation information
- E. Other (Describe specifically:)
- F. Not applicable / no specific theme



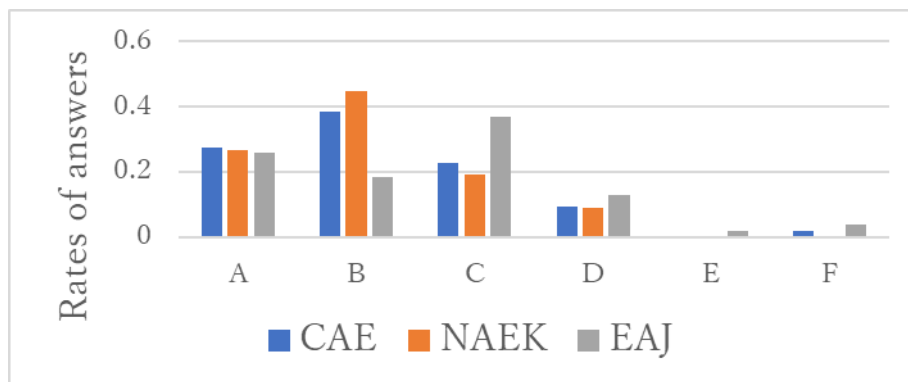
Q2-2: Select the one item from the following that you believe is the most suitable theme for joint efforts involving Japan, China, and South Korea in the field of river flood control.

- A. Developing rainwater storage and related facilities
- B. Developing retarding ponds, discharge channels, and other water facilities
- C. Developing underground waterways, underground reservoirs, and other such works
- D. Developing dams and similar flood control works
- E. Building and making appropriate use of dammed reservoirs
- F. Providing river information using ICT
- G. Other (Describe specifically:)
- H. Not applicable / no specific theme



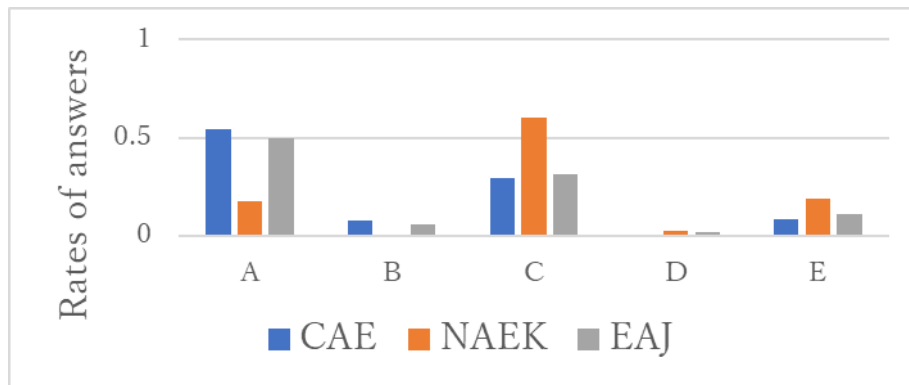
Q2-3: Select the one item from the following that you believe is the most suitable theme for joint efforts involving Japan, China, and South Korea in the field of countermeasures against inland water flooding.

- A. Developing regulating ponds, rainwater storage facilities, and related facilities
- B. Developing underground waterways, underground reservoirs, and other such works
- C. Developing drainage facilities
- D. Developing sewage systems
- E. Countermeasures such as waterproof boards and sandbags
- F. Other



Q2-4: Select the one item from the following that you believe is the most suitable theme for joint efforts involving Japan, China, and South Korea in the field of infrastructure development as a countermeasure against flood damage.

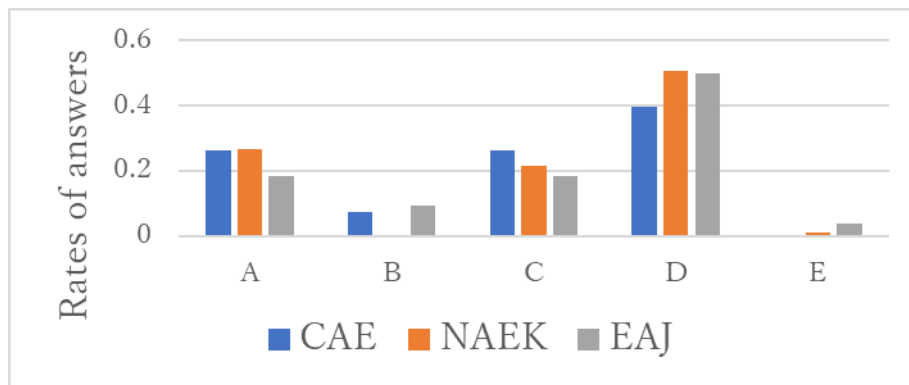
- A. Land use regulations, requiring construction on land located above flood plains
- B. Promoting relocation of residents
- C. Policy formulation (e.g., Business Continuity Planning)
- D. Other



Comment on Q2: Regarding the flood countermeasures, NAEK is equally focusing on river flooding, inland flooding and infrastructure. On the other hand, CAE and EAJ rather focusing on Urban development. About the specific countermeasures for each area, CAE and EAJ have a little similarity.

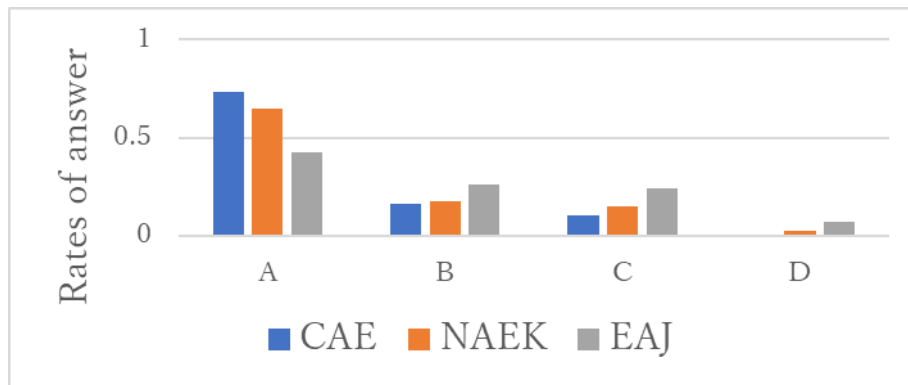
Q3: Which of the following do you believe is the most important field/technological areas your country should focus on in terms of storm surge and tsunami countermeasures?

- A. Developing seawalls, water gates, etc.
- B. Developing shelters, etc.
- C. Developing storm surge and tsunami hazard maps
- D. Prompt provision of storm surge and tsunami information
- E. Other



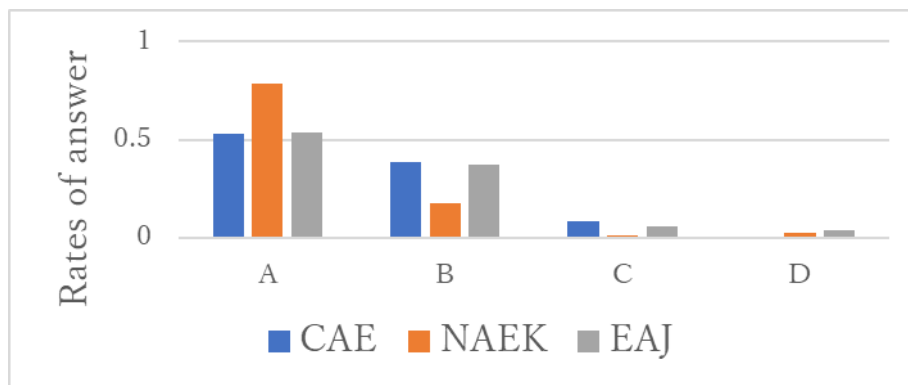
Q3-1: Select the one item from the following that you believe is the most suitable theme for joint efforts involving Japan, China, and South Korea among equipment maintenance technologies and policies for storm surges and tsunamis.

- A. Selecting appropriate countermeasures such as seawalls and large water gates
- B. Installing or renovating equipment
- C. Developing flood gate operation systems, guidelines, etc.
- D. Other



Q3-2: Select the one item from the following that you believe is the most suitable theme for joint efforts involving Japan, China, and South Korea as countermeasures against storm surges and tsunamis (other than facility maintenance).

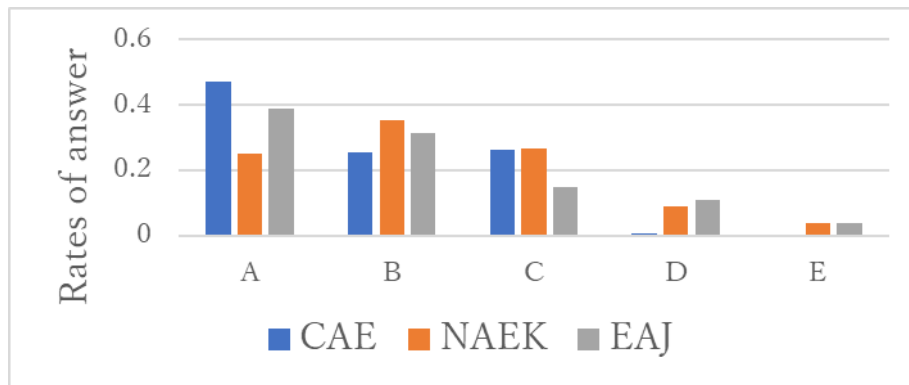
- A. Prompt identification and provision of storm surge and tsunami information
- B. Support for formulating regional disaster prevention plans
- C. Efforts to promote understanding among residents, such as holding study sessions
- D. Other



Comment of Q3: In this group of questions, responses from 3 academies have similarities. "Prompt provision of storm surge and tsunami information" is the biggest concern. And for the tsunami countermeasure, developing flood gate operation systems is thought to be important.

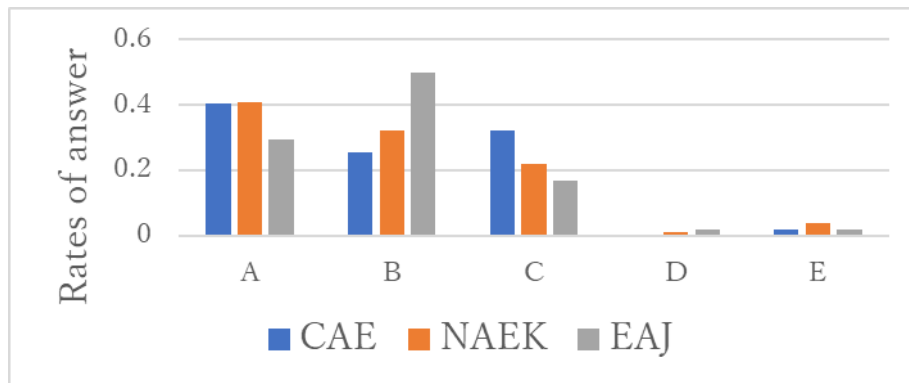
Q4: Which of the following do you believe is the most important field/technological area your country should focus on for sediment disaster countermeasures?

- A. Predicting landslides, debris flows, etc.
- B. Measures for facilities and structures, such as infrastructure development
- C. Reevaluating and expanding landslide warning areas, etc.
- D. Review of safety standards, etc. for artificial slopes
- E. Other



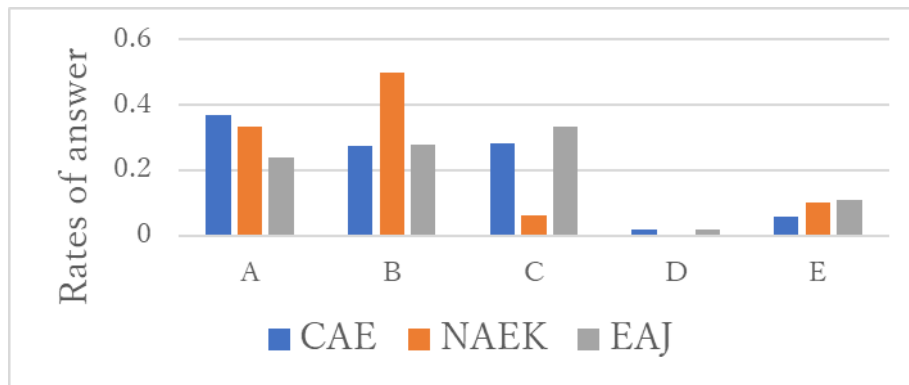
Q4-1: Select the one item from the following that you believe is the most suitable theme for joint efforts involving Japan, China, and South Korea among prediction technologies and countermeasures for landslides and debris flows.

- A. Monitoring and predicting landslide disasters
- B. Risk predictions based on topographical and geological knowledge
- C. Landslide predictions based on GIS (geographic information system)
- D. Other (Describe specifically:)
- E. Not applicable / no specific theme



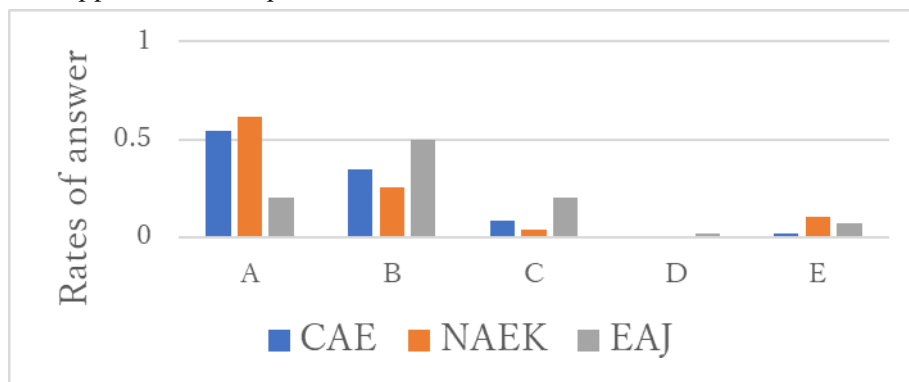
Q4-2: Select the one item from the following that you believe is the most suitable theme for joint efforts involving Japan, China, and South Korea among infrastructure development technologies and ideas for landslide disaster countermeasures.

- A. Developing erosion control dams and similar measures
- B. Establishing/improving slope drainage measures
- C. Developing evacuation centers and transportation networks
- D. Other (Describe specifically:)
- E. Not applicable / no specific theme



Q4-3: Select the one item from the following that you believe is the most suitable theme for joint efforts involving Japan, China, and South Korea among information and organizational measures for disaster prevention and mitigation of landslide disasters.

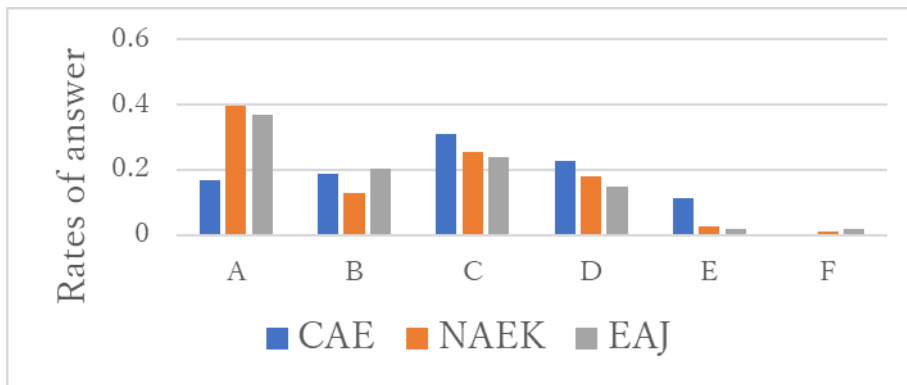
- A. Identifying and reassessing landslide warning areas, etc.
- B. Maintaining system for issuing evacuation information and warning
- C. Establishing and strengthening support measures as part of joint efforts with residents
- D. Other (Describe specifically:)
- E. Not applicable / no specific theme



Comment on Question 4: Regarding the sediment disaster, NAEK thinks improvement of facilities and structures is important, while CAE and EAJ focus on monitoring and prediction of landslides. For the landslide countermeasures, only EAJ names "Risk predictions based on topographical and geological knowledge" as the most important measure. For facility improvement, NAEK says slope drainage is important. For disaster prevention, CAE and NAEK think "Identifying landslides" is significant. For this area, focuses of 3 academies are somewhat different.

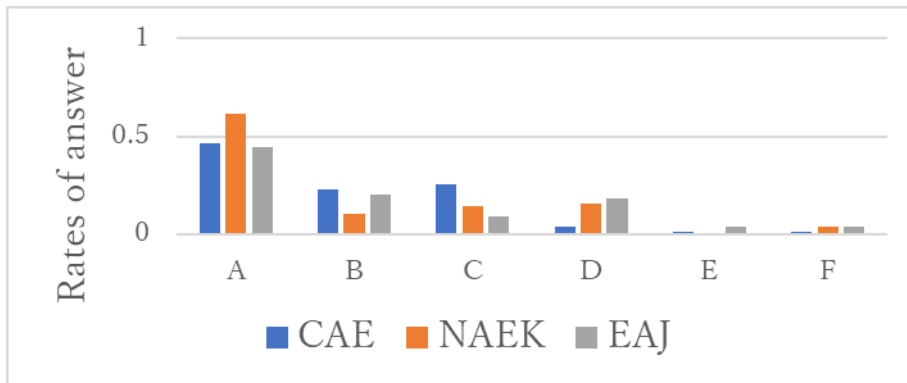
Q5: Which of the following do you believe is the field/technological area your country should focus on more broadly for disaster prevention/mitigation?

- A. Building new disaster-resistant social infrastructures
- B. Strengthening existing social infrastructures
- C. Measures related to information and organizational systems for disaster prevention and mitigation
- D. Measures for facilities and structures for disaster prevention and mitigation
- E. Measures to strengthen industrial resilience, including establishing BCP (Business Continuity Planning) measures
- F. Other



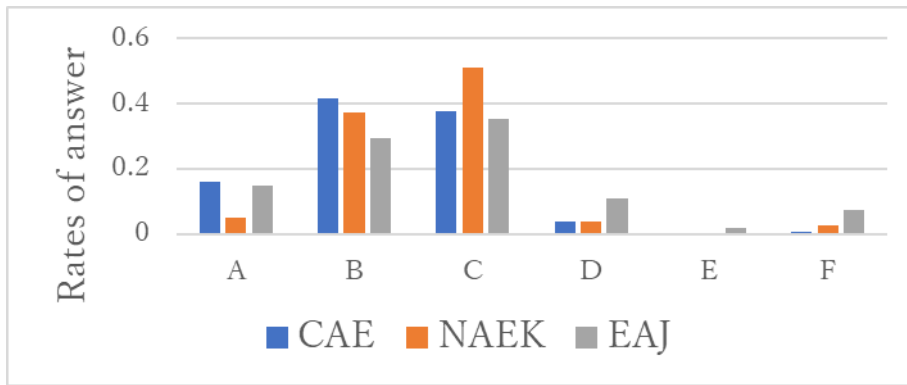
Q5-1: Select the one item from the following that you believe is the most suitable theme for joint efforts involving Japan, China, and South Korea in the area of social infrastructure maintenance technologies for disaster prevention and mitigation.

- A. Technologies that apply big data
- B. Technologies that apply drones, robots, etc.
- C. Technologies related to new materials in construction and related fields
- D. Refining software technologies such as life prediction
- E. Other (Describe specifically:)
- F. Not applicable / no specific theme



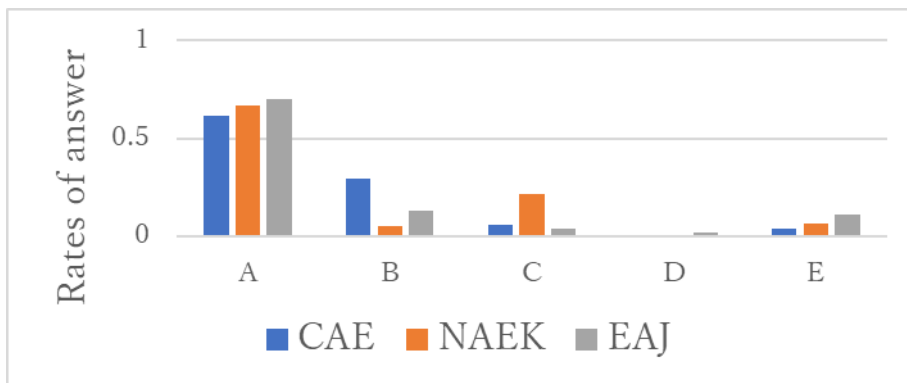
Q5-2: Select the one item from the following that you believe is the most suitable theme for joint efforts involving Japan, China, and South Korea among general measures related to information and organizational systems for disaster prevention and mitigation.

- A. Enhancing risk information during normal times
- B. Enhancing the availability of real-time information during disasters using satellites or other technologies
- C. Enhancing the availability of real-time information during disasters based on monitoring networks
- D. Promoting understanding of disaster prevention and related information
- E. Other (Describe specifically:)
- F. Not applicable / no specific theme



Q5-3: Select the one item from the following that you believe is the most suitable theme for joint efforts involving Japan, China, and South Korea among general measures for facilities and structures for disaster prevention and mitigation.

- A. Promoting the creation of cities designed to be resilient to disasters
- B. Building a disaster-resistant transportation network
- C. Securing housing in the event of a disaster
- D. Other (Describe specifically:)
- E. Not applicable / no specific theme



Comment on Q5: About this group that includes countermeasures to disaster by broad aspects, CAE thinks strengthen of industrial resilience is important rather than building new facilities. Basically, all academies consider enhancement of the resilience of facilities and cities is important. As for the specific measures, utilization of big data is considered to be important by all. Enhancement of real-time information based on some methods are the common interest by all academies. So, for this group of questions, there is a commonality among 3 academies.

Q6: Among the disaster prevention/mitigation technologies not included in 2 to 5, specify any fields in which you believe joint efforts or information exchange among Japan, China, and Korea would be desirable.

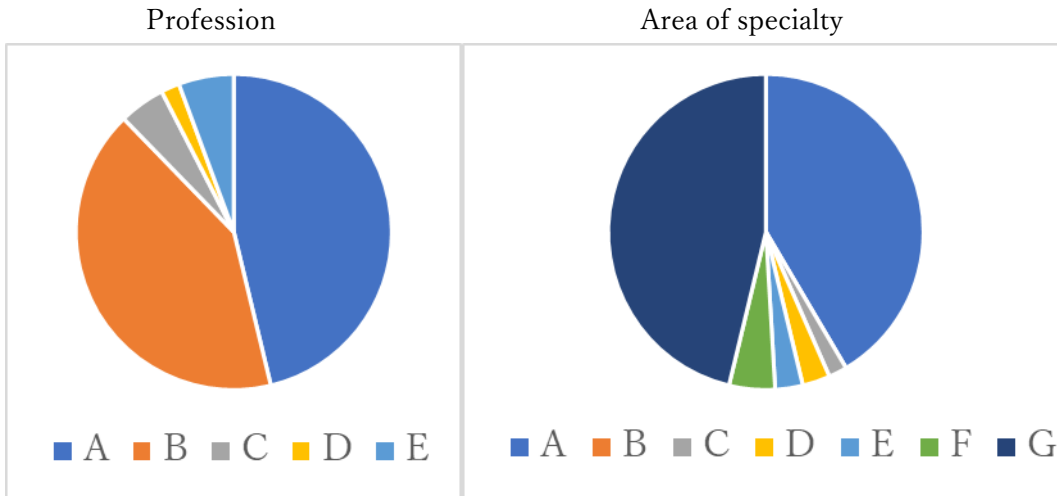
- These are the answer from the respondents.
- Practical application of disaster prevention plans in urban planning
- Improving awareness of the prevention and reduction of disasters such as floods and droughts among residents
- Natural-Nature based Solutions (NNbs) (considering disaster prevention and reduction, environment and ecology), development of disaster prevention technology, etc."
- It is necessary to derive prevention and reduction measures through various case studies on floods, storm surges, disasters in each country.
- Sharing of empirical database and response know-how of each country
- Sharing of information on weather and land change rates in each country
- Technology for drought
- In the global environment, the situation of each country interacts with each other. So that, the cooperation among countries is necessary, including in resource recycling.
- Climate Change Adaptation

Part III: Personal Information

1. About the cooperation experience

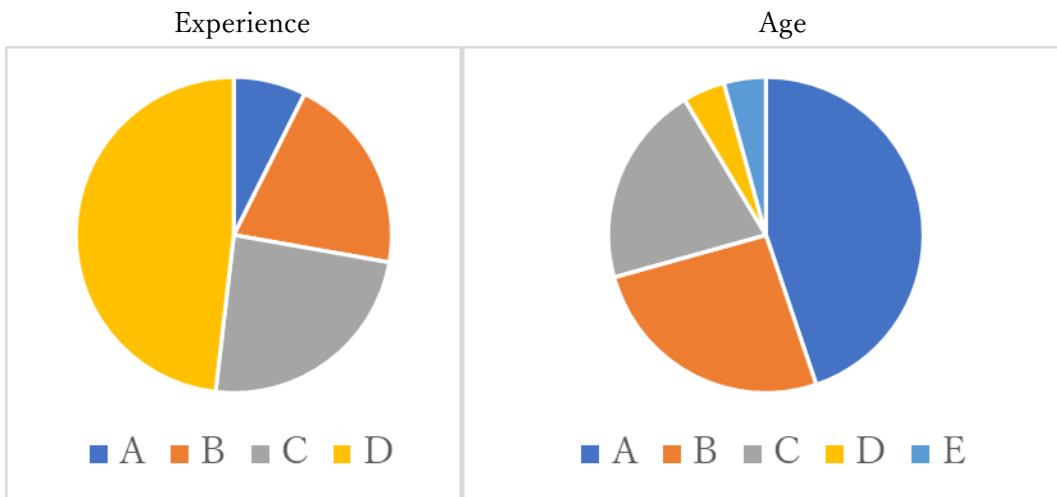
Some of the respondents have a lot of experience such as 5 or more than 10, while most of the rest have no experience of international cooperation.

● CAE's respondent data



- A. Professor
- B. Researcher
- C. Business employer or employee
- D. Government official or public sector employee
- E. Other

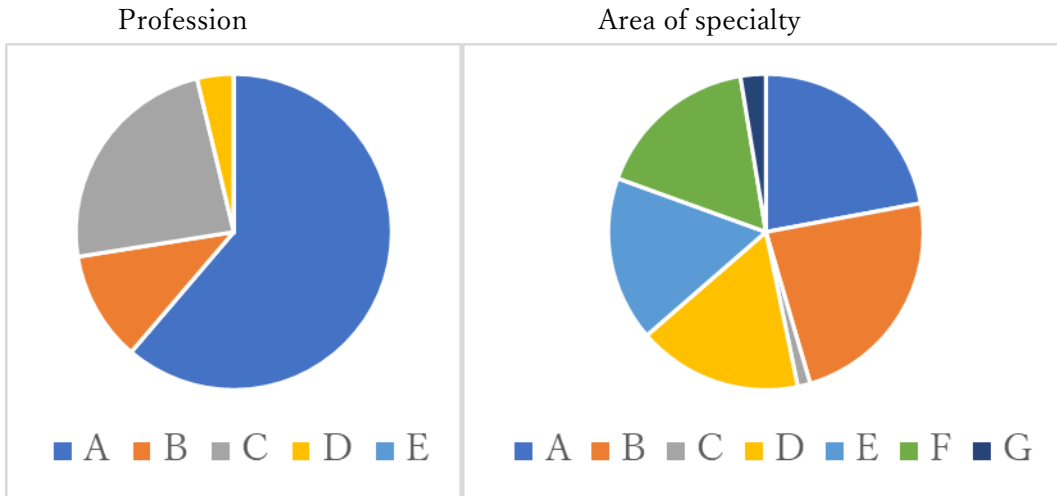
- A. Civil and environmental engineering
- B. Mechanical engineering
- C. Technology management
- D. Material and energy resource engineering
- E. Electric/electronic engineering & ICT
- F. Chemical and biomedical engineering
- G. Other



- A. Less than 5 years
- B. 5-10 years
- C. 10-20 years
- D. More than 20 years

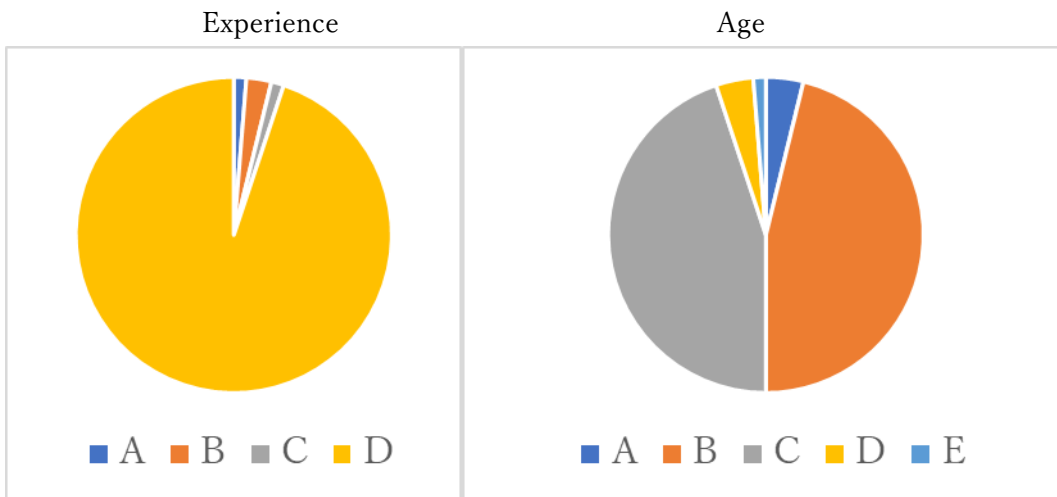
- A. 35-49
- B. 50-59
- C. 60-69
- D. 70-79
- E. 80 and older

● NAEK's respondent data



- A. Professor
- B. Researcher
- C. Business employer or employee
- D. Government official or public sector employee
- E. Other

- A. Civil and environmental engineering
- B. Mechanical engineering
- C. Technology management
- D. Material and energy resource engineering
- E. Electric/electronic engineering & ICT
- F. Chemical and biomedical engineering
- G. Other

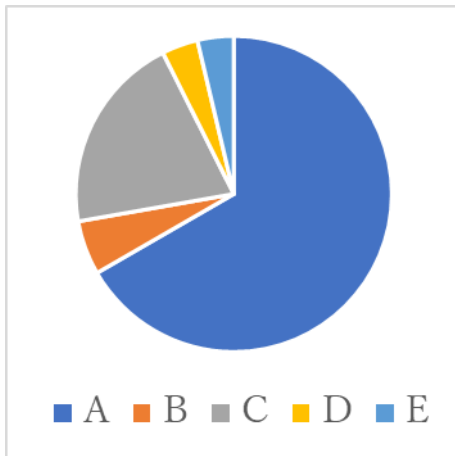


- A. Less than 5 years
- B. 5-10 years
- C. 10-20 years
- D. More than 20 years

- A. 35-49
- B. 50-59
- C. 60-69
- D. 70-79
- E. 80 and older

● EAJ's respondent data

Profession



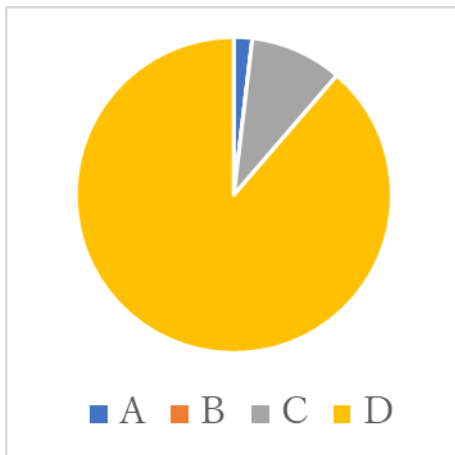
- A. Professor
- B. Researcher
- C. Business employer or employee
- D. Government official or public sector employee
- E. Other

Area of specialty



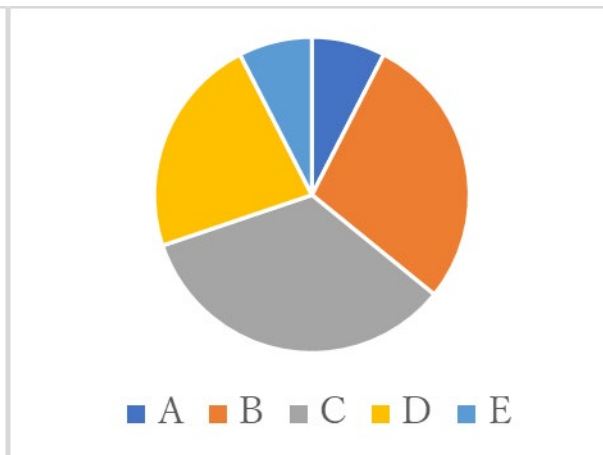
- A. Civil and environmental engineering
- B. Mechanical engineering
- C. Technology management
- D. Material and energy resource engineering
- E. Electric/electronic engineering & ICT
- F. Chemical and biomedical engineering
- G. Other

Experience



- A. Less than 5 years
- B. 5-10 years
- C. 10-20 years
- D. More than 20 years

Age



- A. 35-49
- B. 50-59
- C. 60-69
- D. 70-79
- E. 80 and older