

Key Points in Opinions Visionary Council Members Expressed at the Third Council Meeting

<Program Application>

- ✓ It is a good idea to start the Program after building a global network by organizing several international workshops while discussing promising projects exhaustively. (Council Member Hiroaki Kitano)
- ✓ Global cooperation requires ongoing talks in addition to meetings. Events should be held to cover cooperation that results from face-to-face talks only. Such a community must be built. (Council Member Makiko Eda)
- ✓ Processes, such as those for holding international conferences for clarifying things to do, should be incorporated into respective projects. This Council should discuss processes that lead to decision-making as well. (Council Member Taiyo Fujii)

<Target Establishment>

1 Procedures for Establishing Targets

- ✓ We must properly do things on a fantasy level if we make a moonshot-type challenge. In other words, we must set in motion a cycle for target establishment through which a large number of extremely detailed fantasies are presented and those fantasies are examined closely in a systematic way. (Council Member Kitano)
- ✓ A story about the kind of future we seek to shape is important in establishing themes. (Council Member Kitano)
- ✓ We want to make Japan attractive to the point of gathering people from around the world. Clear targets are necessary for doing that. We should realize such condition by clarifying 5Ws and gathering global wisdoms regarding 1H. (Council Member Naohiro Nishiguchi)

2 Approaches and Criteria for Establishing Targets

- ✓ It is better for targets to include matters other than current issues that are fantastic but not quite understandable, that seem to open up a new world or a new future. (Council Member Kitano)
- ✓ I want the Program to set goals, in other words, what it aims to achieve, without exception to match the expression, moonshot, used in its title. (Council Member Fujii)
- ✓ I think goals that are too specific may not work. I feel the Program can cover more varied studies if it is limited to showing lines of sight and directions. It may also be a good idea to host events by inviting concerned people internationally and asking them to have discussions with no fixed theme, and applying outcome to specific studies after deciding lines of sight and directions. (Council Member Marissa Ozaki)
- ✓ Targets show pre-established harmony when their scale is uniform. The important thing is to select targets that differ in scale. (Council Member Yoichi Ochiai)
- ✓ Looking for long shots that led to mistakes in the past again is important, too. (Council Member Ochiai)
- ✓ The approach must be narrative. Targets should cover items on the global agenda. They must be a blend of challenges in humanities and sciences. (Council Member Yoshimitsu Kobayashi)
- ✓ The exciting parts of the Moonshot targets are very important. (Council Member Eda)
- ✓ Presenting the Moonshot targets as images of an attractive society and missions for industrial circles is essential for turning them into initiatives involving those circles. (Chairman Hiroaki Ishizuka of the New Energy and Industrial Technology Development Organization)

3 Fields, Research and Development Covered by the Program

- ✓ I would like to propose studying a “universal basic income”. Japan can be the leading runner by just conducting a verification experiment on the income on a large scale. I also wonder if it is possible for us to conduct studies that would give a second look at ways of thinking based on Modern Monetary Theory (MMT) and approaches to financial affairs in realizing such research. (Council Member Fujii)
- ✓ I would like to propose creating a world where rescue is completed within 15 minutes of the occurrence of natural disasters and living and business conditions the same as those before the disasters are maintained in all domiciles throughout the world. Various matters must be designed and implemented as combined systems for realizing such a world. Wisdoms can be assembled there because things become more difficult when a time axis is incorporated. (Council Member Nishiguchi)
- ✓ The automation of scientific discoveries should be a theme. Enterprises that keep discovering things will have power greater than Google. I would like to propose an “AI system capable of Nobel Prize-level discoveries by 2050” as a target. AI will decide research themes and formulate hypotheses in such system. (Council Member Kitano)
- ✓ I would like to propose setting up the Earth Defense Forces. Technologies for artificial photosynthesis, photocatalysts and blockchains from the viewpoint of carbon pricing are among those needed for the Forces. Regarding plastic debris, a considerable amount of money has been invested in the private sector. We can expand concerned operations globally by involving private companies. (Council Member Kobayashi)
- ✓ The following multiple targets should be presented to illustrate the approach for selection, including targets of varying scales and those positioned as long shots. (Council Member Ochiai)
 - Covering the distance from Hokkaido to Kagoshima in 48 hours with absolutely no human operational involvement within five years as a target for automated driving
 - Reaching a deep-sea section with a challenging vibration target and discovering the largest possible variety of deep-sea organisms on the sea floor as targets for seabed investigation
 - Reducing costs involved in biological experiments by 50% five years from now as a target for the automation of experimental protocol. Build a framework for automatic experiments using robots supplied with source codes which makes reproductive experiments easy.

- Long shots may be the new applications of old knowledge and child-like targets, such as constructing a 200-meter-class building under the ground, talking with dogs, talking with dolphins, and recharging a smartphone using one's own body.
- ✓ Topics related to conception and delivery by women are attracting interest as the population is aging and the birthrate is falling extremely fast. It may be a good idea to set the meaning of human birth regardless of genders as a theme. (Council Member Ozaki)
- ✓ Global environmental issues have reached a stage where immediate attention is necessary. I feel this is a topic in which Japan should take a lead. People are interested in spending their old age safely without worries. It will be wonderful if the Moonshot Program could generate a big sense of security. (Council Member Eda)