

Grant for Industrial Technology Research  
Program Details for FY2008  
(November 30, 2007)

\* This English-language document is for reference use only, and some terminology may differ from the original Japanese version. In the event of any discrepancies, the original Japanese version shall take precedence.

The New Energy and Industrial Technology Development Organization (NEDO) plans to announce a solicitation for proposals on new technology research under its "Grant for Industrial Technology Research" program. Program details for FY2008 are as described below.

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## 1. Outline

### (1) Purpose of the program

From the perspective of enhancing industrial technology, this program utilizes a competitive funding system to facilitate the industrial application of research and development conducted by young researchers (either as an individual or in teams) at universities and public research institutes. It aims to discover and develop industrial technology seeds that meet the needs of industry and society, and to develop human resources in the field of industrial technology. The research stage is different from academic "basic research" and is positioned as "seeds research" directed toward industrial technology or aimed at practical application.

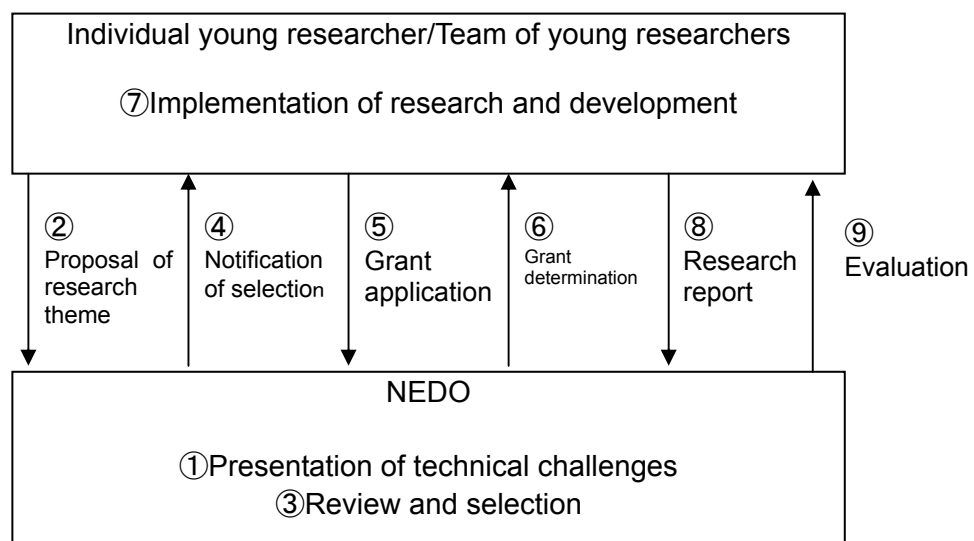
In order to further strengthen Japan's research advantages, NEDO will pursue international research collaboration incorporating foreign research advantages. Based on this, NEDO will promote the globalization of innovation and aim to further improve Japan's industrial competitiveness. In addition, NEDO will foster young researchers as next-generation international leaders through the implementation of collaborative research support under this program.

### (2) Program Scheme

Proposal solicitation and selection in FY2008 will be conducted twice during the year. (For the first public solicitation, proposals will be selected in late April 2008 and financial support will begin to be provided from June 2008.)

The program scheme shall be as follows:

- ① NEDO will present technical challenges (see Exhibit 2) and conduct a proposal solicitation.
- ② Young researchers will submit R&D proposals (see Exhibit 1) based on the technical challenges.
- ③~④ NEDO will review and select R&D proposals and notify applicants of its results.
- ⑤ Selected young researchers will apply for a grant.
- ⑥ NEDO will screen the grant application forms and determine the grants.
- ⑦~⑧ R&D will be carried out and results reports will be submitted to NEDO.
- ⑨ NEDO will conduct interim and post-project evaluations and follow-up reviews/evaluations.



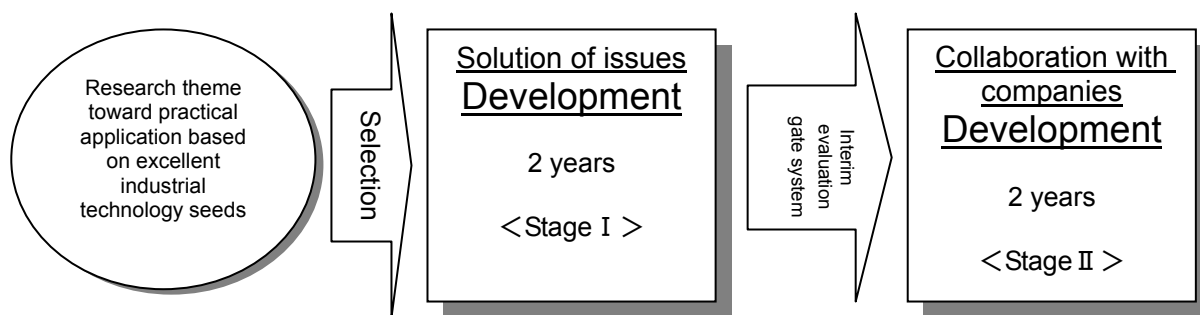
An interim evaluation gate system will be used for the 4-year R&D period of Categories A and B (see 2.1. (1)).

4 years = (Stage I : 2 years) + (Stage II : 2 years) with an interim evaluation gate system  
 2 years = Equivalent to above Stage II .

In Stage I , a goal is set for the solution of issues toward industrial application. The research theme will be able to advance to Stage II when notable results are realized toward the solution of issues and application to industry is expected. At this stage, it is not necessary to sign a joint research agreement with private companies.

In Stage II , a goal is set for joint research with private companies. It is expected that this research will advance to joint research with private companies by the end of the research. NEDO will also actively support collaboration with private companies, such as by looking for potential collaborating companies in response to the progress of a research project.

(See 3.(2), 6.3.(3) and 6.3.(5) for details.)



## 2. General Requirements

### 2.1. Research fields

#### (1) Research theme

Applicants should select a technical challenge in accordance with a field and technical category (see Exhibit 2) and submit a proposal for a relevant research theme.

For all categories, a proposal for a research theme on an issue faced by Japan, such as establishment of a secure and safe society, creation of a society in which everyone can endeavor to improve their way of life and promotion of stable international relationships, should be submitted.

However, proposals related to human cloning, atomic energy and research themes not under the jurisdiction of the Ministry of Economy, Trade and Industry (e.g., development of pharmaceutical products, agricultural chemicals and food products; clinical studies and testing; and military technology) will not be accepted.

A policy objective number from the Third Term Basic Program for Science and Technology (see Exhibit 3) should be selected and indicated in the proposal, and the reason for selection and positioning on the Technology Strategy Map (see Exhibit 4) should be explained. Keywords (see Exhibit 5) should also be provided.

●Category A:

- ①Life science field, ②Information technology field, ③Nanotechnology/materials field
- ④Manufacturing technology field

●Category B:

- ⑤Environment and energy field

●Category C:

- ⑥ Integration of advanced technology field

A proposal for a research theme on a novel innovative technology with a synthesis of different fields should be submitted. The proposal may be in the primary stage that is not immediately put to practical application if its innovativeness and synthetic ability are excellent. In this case, NEDO will conduct an interim evaluation but not introduce the gate system. (See 6.3.(5))

●Category D:

- ⑦Social science of industrial technology field

●Category E:

- ⑧International field

- (i) Research collaboration to establish innovative technologies through international technology integration

Innovative technology for Japan's sustainable development and a field that needs R&D having international integration

- (ii) International research collaboration to address social needs

Technology development for Japan's sustainable development and a field that responds to the needs of international society, such as issues related to safe and secure life, global issues (e.g., global environment and international energy demand and supply) and development of standards required for international society.

For the international research field, NEDO will conduct an interim evaluation but not introduce the gate system. (See 6.3.(5))

## (2) R&D stage

Based on the results of basic research (technical seeds) conducted by young researchers (either as an individual or in teams) and with further development of the research, the research must be purpose-oriented creative basic research (theoretical or experimental research to obtain new knowledge contributing to the discovery of industrial technology seeds) whose results hold the possibility of practical application/commercialization or applied research (research for the application of basic research results).

In case of the 4-year R&D period in Categories A or B (interim evaluation gate system), the following points shall be focused on during the screening for advancement to Stage II.

The research must achieve notable results toward the solution of relevant issues and must be expected to be applied to industry. It is not necessary to sign a joint research agreement with private companies.

In Stage II, a goal will be set for joint research with private companies. It is expected that this

research project will advance to joint research with private companies by the end of the research period.

The 2-year R&D period for Categories A or B shall be considered to start following Stage I of the 4-year R&D period (interim evaluation gate system).

For Categories C and E, the R&D period is 4 years. The research is intended to begin from the basic stage, and NEDO will conduct an interim evaluation but not introduce the gate system. For Category D, the R&D period is 2 years and NEDO will not consider collaboration with private companies.

## 2.2. Eligible applicants (Categories A to D)

Applicants must work for a university or research institute as defined in 2.2.(3) and must be young researchers (either as an individual or in teams) who meet the conditions listed below. For Categories A to D, any nationality is acceptable.

### (1) Individual researchers

Applicants must be full-time researchers or be deemed full-time researchers<sup>\*1</sup> of universities or research institutes as of the closing date for application (January 24, 2008) and must be under 40 years old as of the closing date for application, "in principle."<sup>\*2</sup> Individual researchers shall be also be a research coordinator.

### (2) Research teams

A team consisting of one research coordinator and one or more research team members must conduct the same R&D and meet the following two conditions:

- ① The research coordinator must meet the same conditions as specified above in 2.2.(1).
- ② Research team members must, in principle, be under 40 years old as of the closing date for application (January 24, 2008) and must be full-time researchers or be deemed full-time researchers<sup>\*1</sup> of universities or research institutes as of the closing date for application, or must meet the three requirements for part-time researchers<sup>\*3</sup> of universities or research institutes.

In the case of a research team, if one researcher (including the research coordinator) does not meet the above requirements or conditions, the team cannot apply for the program.

#### \*1: Deemed as full-time researchers

Part-time researchers of universities or research institutes (except workers who receive a full salary from a company) who are substantially equivalent to full-time workers shall be deemed as full-time researchers. In particular, part-time researchers who have research positions in universities or research institutes and work five or more days a week.

#### \*2: The meaning of the expression "in principle" be under 40 years old.

- ① An outstanding research theme may be selected even if a researcher is 40 years old or older. However, if there is another research theme with the same evaluation score,

younger researchers shall have priority.

②For Category B (Environment and energy field), the age limit shall be flexible for excellent research themes with a high energy effect.

③For Category C (Integration of advanced technology field) and Category D (Social science of industrial technology field), the age limit shall be flexible based on the age limit for previous solicitations (under 45 years old)

\*3: Three requirements for part-time researchers

The following three requirements for part-time researchers of universities or research institutes (except workers who receive a full salary from a company) must be met for a part-time researcher to participate in the program as a research team member:

①The researcher must play an essential role regarding execution of the research plan and must be responsible for the execution of R&D.

②The researcher's university or research institute must confirm that the researcher can participate in the research from the viewpoint of working style.

③The researcher must have a research position in a university or research institute.

(3) Requirements for universities/research institutes

Universities/research institutes must be located in Japan and be one of the following types of organizations that conduct research and development themselves:

①Universities (except academies), inter-university research institutes, junior colleges and technical colleges

②National laboratories

③Independent administrative institutions

④Public testing and research institutes (including local administrative institutions)

⑤Non-stock special public corporations established by law

⑥Incorporated foundations established in accordance with Article 34 of the Civil Law for the purpose of research and development using foundation-owned research facilities. (Except for Category D. A copy of the foundation's endowment act, a list of major research facilities, a list of major research equipment and a list of major research results must be included with the application.)

⑦Incorporated associations established in accordance with Article 34 of the Civil Law for the purpose of research and development with association-owned research facilities. (Except for Category D. A copy of the association's articles of association, a list of major research facilities, a list of major research equipment and a list of major research results must be included with the application.)

(4) Requirements for research coordinators

A research coordinator must be responsible for the R&D during the R&D period, and he or she must be able to communicate with NEDO in Japanese.

Research coordinators must not, in principle, change during R&D period. If it is expected in advance that a research coordinator cannot conduct R&D for a long period of time due to an overseas business trip/transfer or some other reason(s) during the R&D period, he or she cannot apply for the program. A research coordinator who is currently receiving financial support under this program cannot serve as a representative of other researchers if there is any overlap between the duration of research periods.

As an exception for the first proposal solicitation in 2008, research coordinators who selected by the first proposal solicitation in 2005 (R&D period until June 30, 2008) are able to apply this time.

Please note that if there are research themes with the same evaluation score, researchers who have not been selected for this program shall have priority over researchers who have been selected in the past.

#### (5) Requirements for R&D work locations

Research must, in principle, be conducted using the facilities of universities or research institutes of researcher coordinators and research team members. However, research may be conducted elsewhere in Japan if it can be conducted smoothly.

### 2.3. Eligible applicants (Category E)

Research teams of young researchers working for universities or research institutes in Japan as defined in 2.2.(3) and researchers working for overseas research institutes (2.3.(5)) must meet all of the requirements listed below. Research coordinators must ensure that research teams meet the requirements of 2.3.(1).

#### (1) Requirements for research teams

- ① Research teams must consist of researchers who have the capability to properly conduct proposed R&D. Research team members must closely collaborate with each other, and teams must utilize the advantages of international collaboration.
- ② Research team members must meet the conditions of 2.3.(3) and 2.3.(4).
- ③ The nationality of research team members must number more than one, including Japanese.
- ④ At least one researcher working for an overseas research institute must be under 40 years old as of the closing date for application (January 24, 2008).
- ⑤ The institutes of research team members must be located in more than one country, including Japan.

#### (2) Requirements for research coordinators

- ① Research coordinators must possess Japanese citizenship.
- ② Research coordinators must be full-time researchers or be deemed full-time researchers\*<sup>1</sup> of universities or research institutes in Japan(2.2.(3)) and their place for research must be in Japan.
- ③ Research coordinators must, in principle, be under 40 years old.

- ④ Research coordinators must prepare and manage the research plan on behalf of research teams and select persons who can play a central role in effective and efficient execution of proposed R&D. In addition, research coordinators must supervise the expenses of research teams.
- ⑤ Research coordinators must be able to communicate with NEDO in Japanese.

Research coordinators must not, in principle, change during the R&D period. If it is expected in advance that a research coordinator cannot conduct R&D for a long period of time due to an overseas business trip/transfer or some other reason(s) during the R&D period, he or she cannot apply for the program. A research coordinator who is currently receiving financial support under this program cannot serve as a representative of other researchers if there is any overlap between the duration of research periods.

As an exception for the first proposal solicitation in 2008, research coordinators who selected by the first proposal solicitation in 2005 (R&D period until June 30, 2008) are able to apply this time.

Please note that if there are research themes with the same evaluation score, researchers who have not been selected for this program shall have priority over researchers who have been selected in the past.

### (3) Requirements for researchers working at universities or research institutes in Japan

Researchers working for universities or research institutes in Japan as defined in 2.2.(3) must meet the following conditions:

#### ① Research coordinators

The same conditions specified in 2.3.(2) above.

#### ② Researchers other than research coordinators (research team members)

Research team members must, in principle, be under 40 years old as of the closing date for application and must be full-time researchers or be deemed full-time researchers<sup>\*1</sup> of universities or research institutes in Japan (2.2.(3)) or must meet the three requirements for part-time researchers<sup>\*3</sup> of universities or research institutes as of the closing date for application.

Researchers must perform all of their research work in Japan.

### (4) Requirements for research team members working at overseas universities or research institutes

Research team members must be full-time researchers or be deemed full-time researchers<sup>\*1</sup> of overseas universities or research institutes (2.3.(5)) or must meet the three requirements for part-time researchers.<sup>\*3</sup> At least one overseas researcher must be under 40 years old as of the closing date for application (January 24, 2008).

\*1: Deemed as full-time researchers

Part-time researchers of universities or research institutes (except workers who receive a full salary from a company) who are substantially equivalent to full-time workers shall be deemed as full-time researchers. In particular, part-time researchers who have research positions in universities or research institutes and work five or more days a week.

\*2: The meaning of the expression “in principle” be under 40 years old.

An outstanding research theme may be selected even if a researcher is 40 years old or older. However, if there is another research theme with the same evaluation score, younger researchers shall have priority.

\*3: Three requirements for part-time researchers

The following three requirements for part-time researchers of universities or research institutes (except workers who receive a full salary from a company) must be met for a part-time researcher to participate in the program as a research team member:

- ①The researcher must play an essential role regarding execution of the research plan and must be responsible for the execution of R&D.
- ②The researcher's university or research institute must confirm that the researcher can participate in the research from the viewpoint of working style.
- ③The researcher must have a research position in a university or research institute.

(5) Requirements for overseas universities/research institutes

Overseas universities/research institutes must, in principle, meet the same requirements as domestic universities/research institutes specified above in 2.2. (3). (Researchers employed by a private commercial company shall not be eligible to apply for the program.)

Researchers must have sufficient research facilities to conduct the research concerning the research theme.

2.4. Limitation/prohibition of application

(1) Limitation regarding the number of applications

One researcher must submit a R&D proposal as a research coordinator, and a research team may submit only one R&D proposal.

(2) Prohibition of double application

If a research coordinator or research team member has already received a grant or other financial support from another public program that requires full-time research, he or she cannot apply to participate in this program.

If a researcher has already received a grant or other financial support, he or she cannot apply to carry out the same or any part of the same research in this program.

(3) Elimination of excessive concentration of research funds

A research coordinator or research team member may not apply for this program if he or she is unable to efficiently or effectively use a research budget, including another program's budget,

allocated during this fiscal year as in the following cases:

- ①The research budget is excessive given the capabilities of the researchers and planned research methods.
- ②The research budget is excessive given the amount of effort allocated to the research work.
- ③The research facilities that need to be purchased are too expensive.
- ④Any other cases that are similar in nature to the above.

(4) Methods of eliminating irrational overlapping and excessive concentration

In order to eliminate irrational overlapping and an excessive concentration of competitive funds, NEDO will take the following measures:

- ①In order to eliminate irrational overlapping and an excessive concentration of competitive funds, NEDO will provide partial information regarding submitted applications as necessary to other competitive funds organizations, including relevant departments within governmental ministries (including independent administrative agencies). If there is any irrational overlapping or excessive concentration, such applications shall not be selected.
- ②The application/acceptance status (program name, research proposal, period, budget, effort, etc.) of all relevant competitive funds support, including funding provided by governmental ministries, should be clearly stated in a research team's application. If such information is different from actual fact, the research proposal will be rejected, the research team's selection will be revoked or the grant amount will be reduced.

(5) Measure in the event of a misused or dishonestly received grant and/or improperly carried out research

Researchers who have previously misused or dishonestly received a grant and/or improperly carried out research, and any conspiratorial researchers, will not be allowed to apply for this program. See 6.3.(12) and 6.3.(13) for details.

If there has been any improper conduct that runs counter to the spirit of the grant program, such as misuse of a research budget provided under a national or independent administrative agency's competitive funds system or any of NEDO's other research programs, an application for this program shall be restricted as well.

### 3. Grant Conditions

(1) Number of proposals to be selected

Approximately 50 proposals are expected to be selected for this program in FY2007.

(2) R&D period

The R&D period for Categories A and B shall be either 2 or 4 years. For Categories C and E, it shall be 4 years. For Category D, it shall be 2 years.

In the case of the 4-year R&D period for Categories A or B (interim evaluation gate system), approximately 70% (depending on evaluation results) of projects will advance to Stage II based

on the evaluation for Stage I . The research project must achieve notable results and be expected to be applied to industry in order to advance to Stage II . In Stage II , a goal is set for joint research with private companies. It is expected that this research will advance to joint research with private companies by the end of the research period. The 2-year R&D period for Categories A or B shall be considered the same as above for Stage II .

The actual R&D period shall extend from June 2008 to May 2012 (4-year period), or from June 2008 to May 2010 (2-year period), as a premise for budgets for subsequent years. When a research coordinator takes maternity leave or child-care leave, the R&D period may be extended for an additional year if the research team applies for such an extension.

(3) Expenses covered by a grant and total grant expenses per project

Expenses covered by a grant shall be direct expenses required for the execution of R&D and overhead expenses required for management of research institutes, etc. associated with execution of the R&D (about 30% of direct expenses). (See Exhibit 6.)

Total allowable direct expenses per project during the R&D period will be as follows:

Categories A and B:

2-year period: Up to 30 million yen

4-year period: Up to 50 million yen (Stage I and II : Up to 25 million yen each)

Category C (4-year period): Up to 50 million yen (Up to 30 million yen for Stage I )

Category D (2-year period): Up to 10 million yen

Category E (4-year period): Up to 50 million yen (Up to 30 million yen for Stage I )

However, NEDO may provide more grant funding than indicated above depending on the progress of a project if NEDO deems it necessary.

4. Procedures and Schedule for Application Submission

There are two ways to apply for this program as follows:

①Application with paper documents

Application period: November 30, 2007 to 5:00 p.m. on January 24, 2008

②Electronic application

Application period: 10:00 a.m. on January 8, 2008 to 5:00 p.m. on January 15, 2008

One of above ways should be selected after the following application instructions have been carefully reviewed.

The application form has been updated and only the current application form in Microsoft Word format shall be accepted.

4.1. Application with paper documents

(1) Applications

If an application is incomplete or improperly prepared, it may not be accepted.

An application should be confirmed using the "Application/Requirements Check Sheet" on the last page of Exhibit 1, "Application Format," before it is submitted.

①Application/Requirements Check Sheet: 1 sheet

②R&D proposal: 18 copies

Since proposal formats vary by program, an applicant should be sure to use NEDO's format for FY2007. The format can be downloaded from NEDO's Web site at <http://www.nedo.go.jp/>.

A4-size R&D proposals should be prepared in Japanese and submitted as described below.

- Original (one-side printing and clipping with an alligator clip): 1 copy  
With individual information (name, institute, department, address, phone number and e-mail address)
- Copy of original (double-side printing and stapling with a stapler): 17 copies  
R&D proposals may be copied by NEDO for processing, screening, etc.

③Electronic data

CD-R disks or floppy disks should be used, and they should be identified by including the name of the research coordinator and his or her institute on the media surface or on labels.

Electronic data for R&D proposals should be submitted in Microsoft Word format.

- R&D proposal for normal use: 1 set  
With individual information (name, institute, department, address, phone number and e-mail address)

④Patent summary: 18 copies

Attach a patent summary (or patent applications) with the scope of a claim only if 4.(9) of Exhibit 1, "Application Format," is completed.

If it is difficult to submit a patent summary because a patent is pending, it is not necessary to attach a summary.

⑤Postcard reply notifying acceptance of application materials: 1 card

A postcard with necessary information (with a 50-yen postal stamp) should be submitted.

Fill in the postcard in accordance with Exhibit 7, "Postcard Reply Form for Notifying Acceptance of Application Materials."

⑥Incorporated foundation/association profile: 1 copy

Attach a copy of the endowment act (for an incorporated foundation) or the articles of association (for an incorporated association), a list of major research facilities, a list of major research equipment and a list of major research results.

(2) Application period

Applications must be delivered to NEDO during the application period (November 30, 2007 to 5:00 p.m. on January 24, 2008).

(3) Submission methods and location where applications should be submitted

①By mail or general delivery

Write "Enc. Proposal for Grant for Industrial Technology Research" in red ink and indicate the "Field" and "Technical Challenge" 2-digit number on the front of the envelope.

To: Grant Group, R&D Promotion Department, NEDO

Muza Kawasaki Central Tower 20F, 1310, Omiya-cho, Saiwai Ward, Kawasaki City

212-8554 Japan

② In person delivery

Day and time of acceptance: Monday to Friday (except holidays), 9:30 a.m. to 12:00 p.m.  
and 1:00 p.m. to 5:00 p.m.

Location: Muza Kawasaki Central Tower 16F, 1310, Omiya-cho, Saiwai Ward, Kawasaki City  
Tell the receptionist of NEDO that you are bringing an application to be submitted to the  
Grant Group of the R&D Promotion Department.

#### 4.2. Electronic application

##### (1) Preparation and procedures for electronic application

Electronic application is a system to apply for the program through the Internet using electronic files. NEDO's electronic application Web site (<http://www.nedo.go.jp/nedoshinsei/index.html>) should be accessed for details.

It is necessary to obtain an ID and a password for electronic application and to download the electronic application system.

The electronic application process is only compatible with personal computers having a Windows operating system and the capability to save files in Microsoft Word 2000 or Microsoft Word 2003 format. For more details, please refer to the Web site link given above.

The R&D proposal format should be downloaded for completion and submission. The format can be downloaded from the program's Web site at <http://www.nedo.go.jp/itd/teian/oshirase.html>.

Files should be prepared in Japanese and then saved in Microsoft Word 2000 or Microsoft Word 2003 format.

The data capacity, including R&D proposals and attachments such as a patent summary, must be 4MB or smaller. If the capacity exceeds 4MB, attachments such as copies of major research papers and patent summaries should be sent separately. If the file for a R&D proposal by itself exceeds 4MB, paper documents should be used to apply for the program.

Using electronic application by researcher from incorporated/association, send a copy of the endowment act (for an incorporated foundation) or the articles of association (for an incorporated association), a list of major research facilities, a list of major research equipment and list of major research results by paper documents.

NEDO and printing company personnel who have signed a nondisclosure agreement will print out R&D proposals and attachments such as patent summaries for screening. Therefore, good margins and common fonts or image file formats should be used.

Color printing should be used only for R&D concept images. Other pages will be printed in black and white.

##### (2) Applications

If an application is incomplete or improperly prepared, it may not be accepted.

The "Application/Requirements Check Sheet" on the last page of Exhibit 1, "Application Format" should be carefully reviewed to confirm the "1. Application" and "2. Requirements" items before

submission. It is not necessary to submit the Applications/Requirements Check Sheet or Postcard Reply Form for Notifying Acceptance of Application Materials.

①R&D proposals: 1 set

②Patent summary

Attach a file of a patent summary (or patent applications) with the scope of a claim only if 4.(9) of Exhibit 1, "Application Format," is completed.

The file must be in Microsoft Word 2000, Microsoft Word 2003 or PDF format.

If it is difficult to submit a patent summary because a patent is pending, it is not necessary to attach a summary.

If electronic files cannot be attached due to a large capacity or inability to convert to PDF format, copies of major research papers and patent summaries can be sent by mail separately. Enclose the memo that can be printed out from the electronic application system so that documents sent by mail can be identified as an attachment to an electronic application.

If the capacity of a R&D proposal exceeds 4MB, paper documents should be used to apply for the program.

(3) Application period for electronic application

The application period for electronic application is 10:00 a.m. on January 8, 2008 to 5:00 p.m. on January 15, 2007.

4.3. Inquiries about application

Researchers can contact NEDO via e-mail to make inquiries regarding the application process. Inquiries should be directed as follows:

Grant Group, R&D Promotion Department

E-mail: [sangi-201@nedo.go.jp](mailto:sangi-201@nedo.go.jp)

Before making an inquiry, please be sure to read the FAQ posted on NEDO's Web site at <http://www.nedo.go.jp/itd/teian/oshirase.html>.

4.4. Forums and individual meetings (see Exhibit 8)

NEDO will hold forums and individual meetings to provide details such as an explanation and overview of the program, application procedures and how to prepare proposals. Program contents have changed in FY2008. Please participate in the forum if possible.

If you would like to participate in individual consultations, send an e-mail request to [sangi-201@nedo.go.jp](mailto:sangi-201@nedo.go.jp) indicating your (1) Institute, (2) Name, (3) Desired venue, (4) Acceptance no. (for applicants not selected before. e.g. 07A12345), (5) Field, and (6) Research theme (If this is missing, reference data will NOT be prepared.) prior to two days attending a forum.

5. Review of Research Proposals

(1) Selection

NEDO program directors will prepare a plan for the selection of research themes after a screening of requirements for R&D proposals by NEDO, a prior written evaluation (peer review) by outside experts (Exhibit 9) and a screening by a review committee. Following this, research

themes will be selected by a contract/grant review committee.

Hearings may be conducted by the review committee if necessary.

Institutes and the names of outside experts who will conduct prior written evaluations will be disclosed on the program's Web site at <http://www.nedo.go.jp/itd/teian/oshirase.html>. If an outside expert has an interest in a R&D proposal and a fair evaluation seems to be impossible (including not only those having an adversary relationship but also other persons such as a coauthor/coinventor of papers/patents indicated on the proposal or a family member (spouse, blood relative within the fourth degree of consanguinity, matrimonial relative within the third degree of consanguinity and a relative living together), the name and institute of the outside expert should be entered and an explanation given of the reason in the appropriate box of 7. of Exhibit 1, "Application Format."

#### (2) Notification of selection

The selection of research themes will be determined within 90 days after the closing date for application.

Research coordinators shall be notified regarding the selection of research themes. If selected, the grant amount and points of concern regarding execution of R&D will be indicated. If a research theme is not selected, the reason for rejection and comments will be provided. Proposals may be selected if an applicant can accept changes in R&D content or the amount of expenses covered by a grant.

#### (3) Inquiries regarding selection

NEDO program directors will handle inquiries regarding selection up to May 30, 2008. However, selection results will not be changed.

#### (4) Management/disclosure of application information

##### ① Management of applications

R&D proposals shall be used for screening and handling inquiries. Selected research themes shall be subject to interim (Stage I) evaluations, post-project evaluations, follow-up reviews/evaluations and other system evaluations by NEDO.

Submitted documents (including those that are incomplete or improperly completed) shall not be returned. NEDO will dispose of R&D proposals of rejected research themes after the handling of inquiries about selection.

In accordance with 2.4.(2) "Prohibition of double application" and 2.4.(3) "Elimination of excessive concentration of research funds" above, research themes, the names of research coordinators and research team members and outlines of R&D may be provided to other financial support organizations.

##### ② Disclosure of application information

If selected, research themes, names of research coordinators, institutes, departments, positions, outlines of R&D, R&D period, etc. shall be disclosed. If a research theme is not selected, the contents of R&D proposals including research themes and names of research coordinators shall not be disclosed. However, research themes, names of research coordinators and research team members, outlines of R&D, etc. may be provided to other

financial support organizations if requested or inquiries are considered as reasonable.

#### (5) Measures against false description

When any false description in submitted documents or any omission regarding a description is found, an application may be rejected regardless of the screening results. This policy shall also apply in the case that any false description is found after the notification of selection.

### 6. Procedures after Selection

Procedures to be followed after the notification of selection are provided in the “Regulations for a Grant for Industrial Technology Research” (hereinafter referred to as “Grant Regulations”). Principle procedures are as described below.

#### 6.1. Grant application

##### (1) Submission of grant application form

A grant application form for the period from the expected date of a grant designated by NEDO to May 2010 must be submitted.

The R&D plan on the grant application form must, in principle, be the same as that submitted in the R&D proposal. The R&D plan shall include not only R&D contents but also expenses covered by the grant. However, an applicant should improve the R&D plan in accordance with any assignment described in the notification of selection or change in R&D plan in accordance with the condition for selection.

The grant application amount shall be up to the grant amount described in the notification of selection.

When submitting a grant application form, the written consent of each researcher’s institute and a written acknowledgment of support regarding the selected research theme from the department in charge of industry-university cooperation and department in charge of intellectual property (or the department in charge of both, if applicable) of the research coordinator's institute are required.

A grant application for expenses of a research project that is currently or will be receiving grant funding/financial support from the national government or other financial support organizations cannot be submitted as expenses under this program.

In accordance with the “Guidelines for Fair Competitive Funds” (promulgated on September 9, 2005 and revised on November 14, 2006), NEDO may provide partial information regarding applications to the extent necessary to other competitive funds organizations, including relevant departments of governmental ministries, in order to eliminate irrational overlapping and excessive concentration. The selection of a research theme may be revoked if any irrational overlapping or excessive concentration is found. If any false description is found in the application/acceptance status of any other competitive funds, the research theme selection may also be revoked.

##### (2) Screening of grant application forms and grant notification

After the screening of grant application forms, grant notifications shall be made with an additional statement of conditions for the grant. A grant notification may also specify a modification to the grant application. The conditions for the grant must then be followed.

If it is obvious that a grant application is inappropriate, e.g., there is an important variation between the grant application form and the R&D proposal, NEDO may notify the research coordinator and take necessary measures.

If the contents or conditions for a grant are unacceptable, the research team may withdraw its application.

## 6.2. Grant use

Researchers who are selected to receive a grant and the accounting office of their institutes must properly utilize the grant in accordance with the Grant Regulations. Since the financial resource of this grant is the national budget, proper accounting must be conducted in accordance with the “Law on Optimizing Implementation of Budgets Relating to Subsidies” and the “Enforcement Ordinance for the Law on Optimizing Implementation of Budgets for Relating to Subsidies.”

In order to properly utilize this grant, the accounting office of institutes must systematically manage expenses. The accounting for this program must be clearly separated from other accounting, records describing income and expenditures must be prepared, documentary evidence for income and expenditures must be organized and relevant accounting records and documents must be retained for five fiscal years after the completion of the project.

When goods are purchased using NEDO grant funds, they must be managed with the care of a good manager and be efficiently utilized in accordance with the purpose of the grant during and even after the grant duration.

If any researcher who receives a grant cannot return all or part of the grant, the researcher's institute must guarantee repayment.

### (1) Accounting procedures concerning grant-related expenses

#### ① Direct expenses (See Exhibit 6.)

Research coordinators must assume responsibility for the management of direct expenses. However, a research coordinator must entrust the accounting office of his or her institute with accounting work concerning direct expenses such as account management, posting, management and maintenance of records, and acquisition and management of property.

#### ② Overhead expenses (See Exhibit 6.)

Overhead expenses must be paid to the institute of the research coordinator immediately after the grant is received for allocation based on the responsibility of the institute's management.

### (2) Grant procedures and settlement of grant amount

Grant funds shall, in principle, be estimated and paid on a quarterly basis.

Starting in the second quarter of the R&D period, when requesting estimated payment a research coordinator must fully examine the budget implementation for the previous quarter and report the result to the accounting office of his or her institute and also report the result to the Grant Group of NEDO's R&D Promotion Department.

Research coordinators must submit a performance report every March.

The grant amount shall be settled at the end of the R&D period.

(3) Attention regarding direct expenses (See Exhibit 6.)

Special attention should be given to the following expenses:

- ① The labor cost of research coordinators and research team members are not covered by NEDO's grant. However, expenses required for accepting researchers and/or engineers based on a contract between their institutes and temporary employment agencies, researchers or engineers can be recorded as a direct expense.
- ② Construction costs and real-estate acquisition costs are not covered by NEDO's grant. However, minor installation costs for equipment and fixtures purchased under this grant can be recorded as a direct expense.
- ③ Monthly salary, allowances for retirement, bonuses and other allowances in employment relationships with individual researchers are not covered by NEDO's grant. However, expenses for research assistants who temporarily work in a specified research location to assist with experiments and organize materials can be recorded as a direct expense.
- ④ Expenses incurred due to accidents and disasters that occur during the R&D period are not covered by NEDO's grant.
- ⑤ Devices and equipment must be purchased on a timely basis so that they can be used at full value for research work. Property rights related to purchased devices and equipment shall, in principle, belong to the research coordinator. However, purchased devices and equipment must be donated immediately to the institutes of research coordinators or research team members.

If the cost of devices and equipment accounts for a large share of total expenses, NEDO may specify a change in expense budgeting.

(4) Measures based on the “Guideline (Practice Standards) for Management and Auditing of Public Research Expenses at Research Institutes”

The above guideline was developed by the Ministry of Education, Culture, Sports, Science and Technology. Each research institute should establish management and audit systems for grants in accordance with this guideline. Office management systems that incur overhead expenses should be improved as much as possible.

(Reference) “Efforts toward Prevention of Misuse of Public Research Expenses (Common Guideline),” Council for Science and Technology Policy, Cabinet Office (as of August 31, 2006) (<http://www8.cao.go.jp/cstp/output/iken060831.pdf>)

6.3. Remarks regarding research activities

(1) Submission of research reports

Research coordinators must submit research reports whenever NEDO requires them during the R&D period and a final report summarizing all research results after the R&D period.

Research reports shall be disclosed on NEDO's Web site.

(2) Presentation of research results

Presentations of research results may be required in debriefing sessions held by NEDO.

Research results must be timely and properly presented with proper attention given to the securing of industrial property rights such as patents in order to strengthen the competitiveness of domestic industry.

Research team members must clearly indicate that their research results were obtained under NEDO's Grant for Industrial Technology Research program when giving any presentations.

(3) Collaboration with private companies

In accordance with the purpose of this program, efforts should be made to collaborate with private companies toward application to industry.

In the case of the 4-year R&D period in Categories A or B (interim evaluation gate system), it is not necessary to sign a joint research agreement with private companies to advance to Stage II. In Stage II, a goal is set for joint research with private companies. It is expected that this research will advance to joint research with private companies by the end of the research period.

The 2-year R&D period for Categories A or B shall be considered to start following Stage I of the 4-year R&D period (interim evaluation gate system).

NEDO will also actively support collaboration with private companies, such as by looking for potential collaborating companies in response to the progress of a research project.

(4) Attribution of research results

Research results obtained in this program shall belong to the research coordinators and research team members. For industrial property rights such as patents, the regulations of the universities or research institutes of research coordinators and research members should be followed.

For Category E, a research team must submit copies of agreements to NEDO stating that arrangements concerning the attribution and transfer of intellectual property rights acquired through the grant program shall be managed by the research coordinator. This is because research results obtained under the grant program should be properly used in accordance with the aim of the program.

(5) Interim evaluations

Interim evaluations shall be conducted in the second year (at the time of passage of 1 year and 6 months from the beginning) of a 4-year R&D period.

The evaluation items for an interim (Stage I) evaluation for Categories A or B are: ①Progress compared with goal, ②Presentation of research results/patents, ③Prospection of industry/practical application, and ④Collaboration with private companies, etc. Approximately 70% (depending on evaluation results) of projects will advance to Stage II.

Regarding collaboration with private companies, the prospect of joint research shall be highly

evaluated. If there are no patents or patents pending, ②Presentation of research results/patents shall be evaluated on a lesser basis.

The evaluation items for an interim evaluation for Categories C or E are ①Research progress and ②Presentation of research results/patents, etc. A research project may be reviewed or discontinued depending on the results of an interim evaluation.

(6) Continuation of research

At the end of the R&D period, the research may be extended by means of an additional grant if NEDO acknowledges that the research theme has obtained excellent results that can be developed further. In this case, the research coordinator shall take the necessary budgetary steps as advised by NEDO.

(7) Post-project evaluations

Post-project evaluations shall be conducted after the R&D period.

(8) Follow-up of research results

After the end of the R&D period, research coordinators must report on the application their research team's results to industry whenever required by NEDO.

(9) Payment of profit from research results

During the R&D period or within five years after the end of the R&D period, if the results of this program lead to monetary profit due to the licensing of industrial property rights, etc., all or part of such profit (up to the grant amount) may be paid back to NEDO.

(10) Revocation of grant

If a research team breaches the Grant Regulations and/or violates applicable laws, regulations and guidelines, or if any false statement is found in its submitted documents, the grant shall be revoked. Researcher names, details of wrongdoing and countermeasures may be disclosed to the public.

(11) Bioethics for life science research and guidelines for security

For life science research, necessary procedures are provided by laws and regulations or guidelines ("Law on Securing Biotic Diversity with Regulations of Using Genetically-Modified Organisms," "Law on Regulations of Human Cloning Technology," "Guidelines for Establishment and Use of Human Stem Cells," "Guidelines for Gene Therapy Clinical Research," "Ethical Guidelines for Human Genome/Gene Analysis Study," "Ethical Guidelines for Epidemiology Study," "Ethical Guidelines for Clinical Study," "Guidelines for Clinical Study Using Human Stem Cells," etc.) from the viewpoint of bioethics and security measures. Such procedures should be fully complied with and all life science research should be properly conducted.

If any life science research is conducted that violates the above laws and guidelines, the

research team's grant may be revoked.

(12) Measures against misuse or dishonest receipt of a grant

If any misuse of grant funds is found, NEDO shall require the return of all or part of the grant and the following measures shall be taken against any researcher(s) who misused or dishonestly received grant funds in accordance with the "Guidelines for Fair Competitive Funds" (promulgated on September 9, 2005 and revised on November 14, 2006) agreed to by relevant government ministries.

① Eligibility for this program shall be limited for any researchers who misused or cooperated in the misuse of grant funds. NEDO shall provide a summary of such misuse (names of researchers involved, program, institute, research issue, budget, research year, details of misuse, measures taken, etc.) to other competitive funds organizations, including relevant departments in governmental ministries. They may in turn restrict applications for their competitive funds with respect to such researchers. The period of limitation regarding applications for such researchers shall, in principle, be two to five years after the return of NEDO's grant depending on the seriousness of the misuse of the grant.

② Eligibility for this program shall be limited for any researchers who received or cooperated in receiving a grant under false pretenses or other dishonest means. NEDO shall provide a summary of such dishonest receipt of a grant (names of researchers involved, program, institute, research issue, budget, research year, details of false means, measures taken, etc.) to other competitive funds organizations, including relevant departments in government ministries. They may in turn restrict applications for their competitive funds with respect to such researchers. The period of limitation regarding applications for such researchers shall, in principle, be five years after the return of NEDO's grant.

(13) Measures against dishonest research

If any dishonest research is found, NEDO shall take the following measures against any researcher(s) who conducted or were involved in dishonest research (forgery, falsification or theft) in accordance with the "Guidelines for Fair Competitive Funds" (promulgated September 9, 2005 and revised on November 14, 2006) agreed to by relevant government ministries.

① NEDO may require the return of all or part of the grant in consideration of the seriousness of the dishonesty.

② Eligibility for this program shall be limited for those persons involved in the dishonest research. NEDO shall provide a summary of such dishonesty (names of persons involved, program, institute, research issue, budget, research year, details of dishonesty, measures taken, etc.) to other competitive funds organizations, including relevant departments in government ministries. They may in turn restrict applications for their competitive funds with respect to such researchers. The period of limitation regarding applications for such persons shall, in principle, be two to ten years after the occurrence of the dishonest research depending on its seriousness.

③Persons who were not involved in dishonest activity but had certain responsibility, such as failing to perform their duties, shall be treated as specified in ② above. The period of limitation regarding applications for such persons shall, in principle, be one to three years after the occurrence of the dishonest activity depending on its seriousness.

(14) Duty to report dishonesty

①Information regarding persons whose eligibility for this program is limited due to misuse or dishonest receipt of a grant or dishonest research shall be reported to the Cabinet Office. The Cabinet Office shall manage such information in an integrated fashion.

②The Cabinet Office shall conduct proper treatment and management of personal information concerning researchers and other persons in accordance with current law for the protection of personal information held by independent administrative institutions.

7. Use of Personal Information

Personal information included in proposals shall be used for NEDO's proposal solicitation procedure, exhibitions, information support activities, reports to related institutions and materials for budget requests.

President Seiji Murata  
New Energy and Industrial Technology Development Organization

Name of research coordinator  
Institute

I hereby apply for a “Grant for Industrial Technology Research” in FY2008 as below:  
(R&D proposal for “Grant for Industrial Technology Research” in FY2008)

*Entry instructions*

*There is no limitation on the number of words, lines or pages unless otherwise noted.*

*Do not modify or delete any item or note.*

*Font must be MSP Gothic and size must be 11 point, in principle.*

*Alphanumeric characters and hyphens (-) must be one-byte.*

*Underline and insert figures and tables if needed for your explanation.*

1. Research theme:

Do not subtitle.

2. Research coordinator

Furigana:	
Name:	
Sex:	
Institute:	
Department:	
Position:	
Address: Zip code	
Prefecture:	
Street address:	
Phone number:	
FAX:	
E-mail:	

Individual information of applicants will be used for information services such as guidance for grants, exhibitions and support activities for advertisement by NEDO.

3. Fields, technical challenges, policy objectives, keywords and R&D period

<p>Field:  <i>__ A field must be selected from life science, information technology, nanotechnology/ materials, manufacturing technology, environment and energy, integration of advanced technology, social science of industrial technology and international listed in Exhibit 2, "Technical Challenges."</i>  <i>__ In the case of Category A, the field will be categorized by the technical challenge number regardless of the field column.</i>  <i>__ In the case of Category C, enter particular fields to be combined (e.g., life science and environment and energy fields).</i></p>		
<p>Technical challenge number:  <i>__ Select one of the technical challenges from Exhibit 2, "Technical Challenges," and enter the number. The number must be included with the selected technical challenge. (e.g., when entering life science, select a number from 01 to 10.)</i></p>		
<p>Policy objective number and reason for selection:  <i>__ Select one of the policy objectives from Exhibit 3, "Policy Objectives in the Third Term Basic Program for Science and Technology," and enter the number. Enter the reason for selecting the policy objective.</i>  <i>__ If there is no applicable policy objective, indicate this.</i></p>	<p>No.</p> <hr/> <p>Reason</p>	
<p>Positioning on the technology strategy map:  <i>__ Enter applicable technical items from Exhibit 4, "Technology Strategy Map," regardless of the field. (e.g., in the case of the information and communications field, enter as 'Network field→device technology→common basic technology→advanced technology→integrate technology.' If there is no applicable item, enter the field.)</i>  <i>__ If there is no applicable field, indicate this.</i></p>		
<p>Keywords:  <i>__ Select three to five applicable keywords from Exhibit 5, "Keywords," and</i></p>	Keyword No. 1:	
	Keyword No. 2:	
	Keyword No. 3:	
	Keyword No. 4:	

<i>enter the numbers in the order of importance.</i>	Keyword No. 5:	
<i>Free keywords: If there is no applicable keyword in Exhibit 5, enter up to five keywords in the order of importance.</i>	Free keyword 1:	
	Free keyword 2:	
	Free keyword 3:	
	Free keyword 4:	
	Free keyword 5:	
<i>R&amp;D period: Select either four or two years and circle it. (Categories C and E must be four years and Category D must be two years.)</i>		Four years      Two years

#### 4. R&D

##### (1) Summary :

*Explain the R&D in about 200 words. (This summary will be disclosed to the public upon selection. At that time some wording may be amended.)*

##### (2) Purpose:

*Enter how to meet industrial and social needs by achieving the research goal, what seeds of industrial technology are expected and how to solve selected technical challenges.*

##### (3) Background:

*Enter contents and the level of results (technical seeds) for basic research (subsidy for scientific research funds, etc.) in which the applicant has worked (e.g., some of the world's leading R&D, the only one in the world, etc.). (For Category D, social science related to industrial technology, replace "technical seeds" with "methodology," "concept" or "viewpoint.")*

##### (4) Goal

*Enter the goals of R&D at the midpoint and end (as quantitatively as possible including comparison with the world level). Enter when and what patent(s) will be applied for except Category D, social science of industrial technology.*

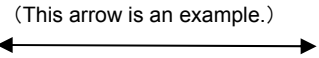


##### (4.1) Interim goal:

*Enter the goals of R&D at the midpoint. Set the interim goal at the time of 1 year and 6 months from beginning for the 4 years R&D period. For the 2 years R&D period, set 1 year as an interim goal.*

##### (4.2) End goal:

##### (5) Schedule

*Fill in the schedule of R&D during the R&D period. Write comment if need.*

Research item (for research team, researcher name)	R&D period Midpoint	
1) Research item (researcher name)		
2) Research item (researcher name)		
3) Research item (researcher name)		

*Note: Enter contents, R&D period and as concrete as possible. And fill in the interim goal also. The broken line (past 1 year and 6 months from beginning) indicates the interim goal for the 4 years R&D period.*

(6) Plan:

Enter a specific plan for achieving the goal of the research. Enter main points to be solved by R&D and a forecast for solution. Research items must correspond with (5) Schedule above.

(7) Necessity of research team:

Enter when applying as a research team.

Enter the responsibilities of each researcher and the necessity of the research. For Category E, international field, enter the necessity of international research collaboration.

(8) Novelty, originality and innovativeness of R&D

Enter the novelty, originality and innovativeness of the R&D, including the level compared with R&D trends. Enter advantages of the R&D over conventional/similar technologies using analysis method (such as SWOT) or comparing by research reports, patents and technological trend survey. Also use a comparative chart according to item as much as possible. If there is no conventional/similar technology, indicate this.

(8.1) Novelty, originality and innovativeness:

(8.2) Comparison with conventional/similar technologies:

(9) Forecast for practical application, etc.:

(9.1) Forecast for practical application:

Assuming that the goal of the R&D is achieved, enter a scenario for practical application to



Research expenses: ___ If research expenses have been accepted for funded research, enter the amount.	
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(10) Energy-saving effect or petroleum substitute effect

\_\_\_ For Category B, environment and energy field, be sure to enter the energy-saving effect or petroleum substitute effect. It is also desirable to enter this information for other fields. If there is no effect, no determination of points can be made as described in Exhibit 9, "Contents of Prior Evaluation."

For Category C, integration of advanced technology, and Category D, social science of industrial technology, no entry is required.

\_\_\_ Give a specific explanation regarding the energy-saving effect or petroleum substitute effect to be realized by achieving the goal of the research theme or its practical application with the effective year and grounds for calculation of market size/market share.

\_\_\_ Enter the accumulated value from the effective year to 2030 using crude oil equivalent (see Exhibit 10). (Calculate in consideration of market size, market share and success rate (=0.9 (fixed).) (For example, the calculation formula for a given year is 5 million kiloliters per year (gasoline consumption) x 0.9058 (crude oil conversion factor) x 1% (market share) x 0.9 (success rate) = 40.8 thousand kiloliters per year.)

Energy-saving effect or petroleum substitute effect: ___ If there is an effect, circle "Yes" and give an explanation of the effect and the accumulated value in the boxes below. If not, circle "No".	Yes                      No	
Explanation of energy-saving effect or petroleum substitute effect:		
Accumulated value of crude oil equivalent by 2030:	kl  Calculation formula:	

(11) Improvement of previous proposal

Enter if research coordinator resubmits an improved R&D proposal that was not previously selected by the program.

Fiscal year:	
Acceptance No.	
Field:	
Research theme:	

Major assignment and improvement:  
*Enter the assignment given in the previous screening and the resulting proposal improvement.*

5. Researchers

In case of a research team, the following information should be prepared for each researcher individually. (Make copies of the following table as necessary.)

Furigana:	
Name:	
Nationality: <i>__researcher in charge of international field only</i>	
Sex:	
Institute:	
Country of institute: <i>__researcher in charge of international field only</i>	
Institution type no. <i>__ Select an institution type no. from below and enter. __ 1: National university, 2: Public university, 3: Private university, 4: National junior college, 5: Public junior college, 6: Private junior college, 7: National college of technology, 8: Public college of technology, 9: Private college of technology, 10: Inter-university research institute, 11: National laboratory, 12: Independent administrative institution (except a national college of technology), 13: Public testing &amp; research institute (including local administrative institution), 14: Special public corporation (nonstock corporation), 15: Incorporated foundation, 16: Incorporated association, 17: Overseas research institute (except a private company), (17: International field)</i>	
Department:	
Position:	
Phone number:	
E-mail:	
Date of birth:	
Age:	<i>(as of January 24, 2008)</i>
Researcher ID: <i>__ Enter the 8-digit researcher ID if the researcher has an ID number for MEXT scientific research funding or the researcher belongs to a research institute such as a national research institute, independent administrative institution and special public corporation. If not, write "None."</i>	
Final degree:	
Work experience:	
Major research papers:	1) :

__ Enter up to three major papers: author name (*), title, journal's name, volume and page number, year and brief explanation of relevance to this research.	2) :	
	3) :	
Academic society membership: __ Select up to three major academic societies from Exhibit 11, List of Academic Societies, and enter.	1) :	
	2) :	
	3) :	
Effort (%): __ Enter researcher's allocation rate (%) required for this R&D by integer value from 1 to 100. 100% shall be the researcher's full working time per year (FY), including education and medical activities.	FY	(%)
	2008	
	2009	(%)
	2010	(%)
	2011	(%)
	2012	(%)
Other public financial support __ If you have received or are receiving or applying for financial assistance or support other than for NEDO's program (except from a private company or incorporated foundation), circle "Yes." If not, circle "No."		Yes      No
Participation in NEDO's program __ If you have participated in or are participating in or applying for NEDO's R&D program, circle "Yes." If not, circle "No."		Yes      No

Enter if you have received or are receiving or applying for other public financial support. (In case of a research team, the following information should be prepared for each researcher individually.)  
 \_\_ If you have received other public financial support before, enter the latest two cases (or one if applicable). If you are receiving or applying for other public financial support, enter all such cases. (Make copies of the following table as necessary.)

Grant program name:	
Institute:	
Research theme:	
Grant period:	
Total grant budget (assumed):	
Participation style (number of participants): __ For example, enter project leader and researchers.	
Effort (%): __ Enter if you have applied	FY 2008 (%)

for or are receiving financial support and the period coincides with the proposed research. (Researcher's allocation rate (%) required for this R&D by integer value from 1 to 100 per year (FY).)	2009	(%)
	2010	(%)
	2011	(%)
	2012	(%)
Difference from this R&D proposal: __Enter if you have applied for or are receiving financial support and the period coincides with this research.		

Enter if you have participated in or are participating in or applying for NEDO's R&D program. (In case of a research team, the following information should be prepared for each researcher individually.)

\_\_If you have previously participated in NEDO's program, enter the latest two cases (or one if applicable). If you are participating in or applying for NEDO's program, enter all cases. (Make copies of the following table as necessary.)

Program:		
Research theme:		
Project period:		
Total entrustment/grant budget (assumed):		
Participation style (number of participants): __For example, enter project leader and researchers.		
Effort (%): __Enter if you have applied for or are receiving entrustment funding or financial support and the period coincides with this research. (Researcher's allocation rate (%) required for this R&D by integer value from 1 to 100 per year (FY).)	FY 2008	(%)
	2009	(%)
	2010	(%)
	2011	(%)
	2012	(%)
Difference from this R&D proposal: __Enter if you have applied for or are receiving entrustment funding or financial support and the period coincides with this research.		

6. Expenses covered by a grant

(1) Assumed breakdown of direct expenses

Enter the assumed breakdown of expenses (total direct expenses) required for implementation of the R&D proposal to one decimal place in million yen based on Exhibit 6, "Allowable Grant Expenses."

For 4-year research in Categories A and B, the budget is up to 50.0 million yen (the total budgets of the first and second years and third and fourth years are up to 25 million yen, respectively.). For 2-year research, the total budget for the first and second years is 30.0 million yen. For 4-year research in Categories C and E, the total budget for four years is 50.0 million yen (the total budget of the first and second years is up to 30.0 million yen.). For Category D, the total budget for two years is up to 10.0 million yen. However, NEDO may increase the budget amount for a grant in response to the progress of a project if NEDO deems this is necessary.

No entry is required in Year 3 and Year 4 columns for 2-year research.

(Million yen)

R&D period	(Stage I )			(Stage II )			Total (whole period)
	Year 1 June 2008 to May 2009 (12 months)	Year 2 June 2009 to May 2010 (12 months)	Year 3 June 2010 to May 2011 (12 months)	Year 4 June 2011 to May 2012 (12 months)			
Budget according to fiscal year	FY2008	FY2009	FY2010		FY2011	FY2012	
	June 2008 to March 2009 (10 months)	April 2009 to March 2010 (12 months)	April 2010 to May 2010 (2 months)	June 2010 to March 2011 (10 months)	April 2011 to March 2012 (12 months)	April 2012 to May 2012 (2 months)	
1. Equipment and supplies expenses							
2. Travel expenses							
3. Remuneration and miscellaneous business expenses							
4. Other expenses							
Total (1+2+3+4)							

(2) Assumed direct expenses of each researcher (Enter only in the case of Category E, international field.)

(Million yen)

Researcher		Institute	Country	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	Total
Name	Nationality								
Research coordinator	Japanese		Japan						
Researcher									
Researcher									
Researcher									
Total									

(3) Utilization of temporary workers

*\_\_ If there are fees for temporary workers, enter what each temporary worker is in charge of. (Make copies of the following table as necessary for each temporary worker.)*

Temporary worker is in charge of:	
-----------------------------------	--

(4) Breakdown of major equipment purchases

*\_\_ Enter the name, specifications, application and assumed cost of equipment valued at more than 2 million yen to be purchased as equipment & supplies expenses. (If there is more than one piece of equipment, make copies of the following table as necessary.)*

Name:	
Specifications:	
Application:	
Assumed cost:	Million yen

(5) Other major expenses

*\_\_ If there are any items valued at more than 1 million yen to be purchased as other major expenses, fill in the following table. (If there is more than one item, make copies of the following table as necessary.)*

Item:	
Application:	
Assumed cost:	Million yen

(6) Acceptance of overhead expenses:

*\_\_ If your institute can accept overhead expenses, circle "Acceptable." If not, circle "Unacceptable."  
 \_\_ In case of the international field, if a researcher's institute needs to pay overhead expenses, overhead expenses accepted by the researcher's institute shall be appropriated.*

Acceptable                      Unacceptable

7. Interested outside experts

*\_\_ If an outside expert who will conduct a prior written evaluation posted on NEDO's Web site has an*

*interest and a fair evaluation seems to be impossible (including not only those having an adversary relationship but also other persons such as a coauthor/coinventor of papers/patents indicated on the proposal or a family member (spouse, blood relative within the fourth degree of consanguinity, matrimonial relative within the third degree of consanguinity and relative living together), enter the name and institute of the outside expert and give an explanation of the reason. (If there is more than one outside expert, make copies of the following table as necessary.)*

Name of outside expert:	
Institute:	
Reason:	

## R&D Concept Image

*\_\_Prepare a concept image that specifically and visually expresses the background, purpose, methods, contents and goals of the research.*

*\_\_Use A4-size paper. (There are no restrictions regarding the number of figures, pages, text direction or color.)*

## Glossary

- \_\_Put technical terms and abbreviations used in the R&D proposal in a glossary if necessary.*
- \_\_If there are any useful Web sites, provide their URLs.*

## Application/Requirements Check Sheet

### 1. Application

- Application/Requirements Check Sheet (this paper, 1 page) (For electronic application, no submission is needed.)
- R&D proposal
  - (Application with paper documents)
    - Original: 1 copy
    - Copies of original: 17 copies
  - (Electronic application)
    - Original: 1 copy
- Electronic data for R&D proposal (1 set of CD-R or floppy disk)  
(For electronic application, not required)
  - Original: 1 set
- Patent summary (Patent summary (or patent application))
  - (Application with paper documents)
    - 18 copies
  - (Electronic application)
    - 1 copy

\*If sending separately from electronic application, submit the same number of copies as application with paper documents.
- Postcard reply notifying acceptance of application materials  
(Not required for electronic application)
- Copy of incorporated foundation/association profile (1 copy)  
(In case of Categories A, B, C or E, application with paper documents is required for an incorporated foundation or association.)  
\* For electronic application, paper document as above is required. (1 copy)

### 2. Requirements

- When an individual researcher submits a proposal, the requirement of 2.2.(1) must be satisfied. When a research team submits a proposal, the requirement of 2.2.(2) (in case of Category E, the requirement of 2.3.(1)) must be satisfied.
- Research coordinators must satisfy the requirement of 2.2.(4) (in case of Category E, the requirement of 2.3.(2)) must be satisfied.
- 2.4.(1) "Limitation regarding the number of applications" must be followed.
- 2.4.(2) "Prohibition of double application" must be followed.
- 2.4.(3) "Elimination of excessive concentration of research funds" must be followed.
- As required in 2.4.(4), the application/acceptance status of other competitive funds, including funds from governmental ministries, must be described in an application.
- Applicants must not misuse or dishonestly receive a grant and/or improperly carry out the research as described in 2.4 (5).
- Total direct expenses during the R&D period must be within the limit of expenses covered by the grant and total grant expenses specified in 3.(3).
- Dishonest information must not be submitted in a proposal.

Technical Challenges

## ● Category A

Field	Technical category	Technical challenges	No.
Life science	Drug discovery/molecular diagnosis technology for health maintenance, security and safety	Technologies on analysis of structure/ function/ network of biomolecules such as protein, sugar chain and RNA	01
		Technologies on biomolecular alteration/utilization	02
		Technologies on countermeasure against infection such as bird flu	03
	Secure and safe regenerative medical technology for recovery of body functions	Technologies on function analysis of tissues such as brain and sense organs	04
		Technologies on creation/regeneration/use of tissues such as bones, cardiac muscle and liver	05
	Medical/welfare technology for health maintenance, security and safety	Technologies on nanomedicine such as a drug delivery system	06
		Technologies on medical/welfare equipment and medical engineering	07
	Secure and safe biofunction application technology for creation of a recycling society	Technologies on application of biofunctions to productive processes	08
		Technologies on application of biological resources to industrial materials and products	09
		Technologies on securing/risk management of genetic resources	10
Information technology	Secure and safe network-related technology for realizing an advanced information communications society	Technologies on high-speed/universal networks	11
		Technologies on I/O usability, including a human interface	12
	Basic technology for support of a secure and safe advanced information communications society	Technologies on high-end devices (nonvolatile memory, etc.)/telecommunications equipment (storage, etc.)	13
		Technologies on efficient manufacturing process of semiconductors/minimization of environmental load	14
		Technologies on software (contents technique, security, etc.)	15
	Innovative technology providing food for a secure and safe next-generation information communications industry	Technologies on next-generation information communications devices/technology	16
	Nanotechnology/ materials	Basic nanotechnology for considerable development of secure, safe and extended science and technology/industry	Technologies on design/processing/manufacturing of nanomaterials
Technologies on design/processing/manufacturing of nanodevices			18
Materials technology for providing secure, safe and innovative properties/functions		Technologies on composite/intelligent materials	19
		Technologies on surface modification/treatment providing useful functions to a material surface	20
		Technologies on high-performance materials leading to safe and long-lived structures	21

	Common basic technology supporting a secure and safe nanotechnology and materials field	Technologies on measurement, evaluation, inspection, analysis and simulation of nanotechnology and materials	22
Manufacturing technology	Machine/system technology revolutionizing a secure and safe industry/society	Technologies on design/manufacturing/application of MEMS (Micro Electro-Mechanical Systems)	23
		Technologies on design/manufacturing/application of highly-function robots	24
		Technologies on processing/manufacturing of microscopic/complex-shaped goods	25
	Productive process for strengthening of international competitiveness of a secure and safe manufacturing industry	Technologies on a safe productive process with minimum environmental load	26
		Technologies on an innovative/efficient productive process	27
	Aviation/space technology aimed at development of a secure and safe international market	Technologies on improved reliability, safety and environmental compatibility of aircraft and next-generation aircraft	28
		Technologies on high-integrity and high-function satellites/rockets with a low cost, reusable space tugs and practical use of space	29
	Technology measures for security and safety aimed at safe construction of a production system	Technologies on safety measures in plants and efficient operations management	30
	New technology for building a secure and safe social infrastructure	Quake-absorbing structures and earthquake-proof structures with a low cost	31

● Category B

Field	Technical category	Technical challenges	No.
Environment and energy	Technology for efficient energy use aimed at securing a safe and stable supply	Technologies on advanced usage of fossil fuel	32
		Technologies on transport/storage/dispersed use of energy	33
		Technologies on effective use of unused energy	34
	Technology for a secure and safe reduction of energy consumption to overcome environmental constraints	Technologies on minimizing process of input energy	35
		Technologies on development/improvement of energy-saving materials, devices and products	36
	Secure and safe clean energy technology aimed at zero emissions	Technologies on development/use of fuel cells	37
		Technologies on manufacturing/energy utilization of hydrogen	38
		Technologies on effective use of natural energies such as photovoltaic generation and wind generation	39
		Technologies on formation of cellulose ethanol, biomass energy and advanced use of renewable energy such as waste generation	40
	Environmental measures technology for establishment of a	Technologies on countermeasures against greenhouse gas such as recovery/ immobilization/ efficient use of CO <sub>2</sub> /CFC-free measures	41

	secure, safe and sustainable society in coexistence with nature	Technologies on reduction of environmental load/ environmental restoration	42
		Technologies on efficient use of water resources	43
	3R technology for creation of a secure and safe recycling society	Technologies on efficient use/recycling of resources/depollution	44
	Integrated chemical management technology for creation of a secure and safe society	Technologies on risk reduction/ evaluation/ management of chemicals	45

● Category C

Field	Technical category	Technical challenges	No.
Integration of advanced technology	Secure and safe field synthetic technology aimed at creation of new values	Innovative technology by technical synthesis of different fields	46

● Category D

Field	Technical category	Technical challenges	No.
Social science of industrial technology	Social science for strengthening of industrial competitiveness	Technical management strategy	47
		Management of R&D for product development/commercialization	48
		Social science on social receptivity of new technology	49
		Service innovation	50

● Category E

Field	Technical category	Technical challenges	No.
International	Research collaboration to establish innovative technologies through international technology integration	Fields that are innovative technologies for Japan's sustainable development and require R&D by international synthesis	51
	International research collaboration to address social needs	Fields of technology development for Japan's sustainable development and which respond to security issues for safe life, global issues such as the global environment and international energy demand and supply, development of standards required by international society, etc.	52

Policy Objectives of the Third Term Basic Program for Science and Technology

Concept	Major policy objective	Sub-policy objective	No.
Generate the wisdom of mankind.	Discovery/invention of knowledge	Discovery/elucidation of new principles/ phenomena	01
		Creation of knowledge that is a source of discontinuous innovation	02
	Pushing past the limits of science and technology	Engine of science and technology by the world's most advanced projects	03
Create the source of national strength.	Simultaneous pursuit of environment and economy	Mastery of global warming/energy issues	04
		Realization of a recycling society in harmony with the environment	05
	Japan as an innovator	Realization of a ubiquitous network society that fascinates the world	06
		Realization of the most advanced manufacturing nation	07
		Strengthening of industrial competitiveness to survive against international competition with science and technology	08
Protect health and safety.	Healthy and vigorous life	Conquering maladies that afflict humanity	09
		Realization of a society where everyone can live comfortably	10
	Nation taking pride in safety	Security of national land and society	11
		Security of people's life	12

For details of the Third Term Basic Program for Science and Technology, please access the following URLs:

Outline of the Third Term Basic Program for Science and Technology (FY2006 – FY2010):  
([http://www.mext.go.jp/a\\_menu/kagaku/kihon/06032816/001.pdf](http://www.mext.go.jp/a_menu/kagaku/kihon/06032816/001.pdf))

Basic Program for Science and Technology:  
([http://www.mext.go.jp/a\\_menu/kagaku/kihon/06032816/001/001.pdf](http://www.mext.go.jp/a_menu/kagaku/kihon/06032816/001/001.pdf))

### Technology Strategy Map

Refer to the Technology Strategy Map 2007 and select applicable technological items for your research regardless of the field.

In the case of the information and communications field, for example, enter as follows: “Network field→Security technology→Authentication technology→Authentication infrastructure.” If there is no applicable item, enter the field. If there is no applicable field, indicate this.

For details regarding the Technology Strategy Map, please access the following URLs:

NEDO’s “Technology Strategy Map”:

(<http://www.nedo.go.jp/roadmap/index.html>)

● Information technology field

- Semiconductor field
- Storage/memory field
- Computer field
- Network field
- Usability (display, etc.) field

● Life science field

- Drug discovery/diagnosis field
- Diagnostic/therapeutic apparatus field
- Regenerative medicine field
- Technologies contributing to measures to fight cancer

● Environment and energy field:

- CFC-free field
- Chemical substance comprehensive evaluation and control field
- 3R field
- Energy field

● Nano technology/materials field

- Nano technology field
- Materials field

● Manufacturing industry field

- Robot field
- Aircraft field
- Space field
- Nanotechnology field
- Component field
- MEMS field
- Green biotechnology field
- Superconductivity field
- Human enterprise field
- Fiber field

## Keywords

●Life science					
101	Amino acid/peptide	139	Operation support system	210	Optical transmission technologies (fiber transmission, solution, cross connect, ADM, WDM, etc.)
102	Protein	140	Telemedicine	211	Optical wireless transmission
103	Sugar/sugar chain	141	Other medical apparatus/equipment	212	Extremely-short optical pulse technology /femtosecond pulse
104	Other biomaterials (alkaloid, heme, etc.)	142	DNA chip/biochip	213	Microwave/millimeter -wave/ terahertz wave
105	Nucleic acid/DNA/RNA/ genome/gene	143	Immuno-assay	214	Mobile communication/ ITS
106	Other biopolymers (cellulose, lignin, polyphenol, etc.)	144	Biochemical analysis/ clinical examination	215	Mobile terminal/radio
107	Antibody	145	Bioagent/virus/ bacteria	216	Satellite/space communication
108	Enzyme	146	Bacteriophage	217	Electromagnetic field/ radio wave
109	Cell	147	Vaccine	218	Antenna engineering
110	Lipid	148	Immunization	219	Supercomputer
111	Organization	149	Allergy	220	Molecular computer/ bio-DNA computer
112	Metabolism	150	Stress	221	Neurocomputer
113	Culture	151	Grafting/renaturation	222	Optical computer
114	Generation/ differentiation/stem cell /reproduction	152	Infection	223	Quantum computer
115	Microbial biotechnology	153	Blood	224	Parallel processing/ vectorization
116	Plant biotechnology/ green biotechnology	154	Cell transplantation	225	Distributed computing
117	Animal biotechnology	155	Regenerative medicine	226	Computer graphics
118	Fermentation	156	Circulatory organs/ high blood pressure	227	Ubiquitous computing/ mobile computing
119	Breeding	157	Diabetes/glycosuria	228	Directory/information search
120	Livestock	158	Cancer/tumor	229	Internet/intranet
121	Food	159	Internal medicine	230	Web technology
122	Wood	160	Surgery	231	Multimedia/on-demand/streaming
123	Other agricultural chemistry	161	Pediatric service	232	Real-time collaboration (interactive processing)
124	Biosensor	162	Nerve/brain	233	High-reliability network/secure network/photonic network/ satellite network
125	Bioelement	163	Dementia	234	Mobile network/ ad-hoc network
126	Bioinformatics/biologic informatics	164	Aging	235	Neural network
127	Rehabilitation	165	Nutrition	236	Information appliances/ home network
128	Support for disabled people	166	Pharmacy/medicines	237	Optical metrology/
129	Elderly care/nursing	167	Drug delivery		
130	Laser medical care				
131	Welfare engineering/ equipment				
132	Biomedical materials				
133	Artificial organs				
134	Ultrasound diagnosis				
135	Noninvasive measurement				
136	Less-invasive therapy				
137	Magnetic resonance imaging (MRI)				
138	Medical robots				
●Information technology					
201	Chaos/fractal				
202	Digital divide				
203	Virtual reality				
204	Information processing/ information system				
205	Algorithm				
206	Spatial information processing				
207	Modeling				
208	Communication system/ protocol				
209	Transmission technologies (ATM, packet, xDSL, powerline communication (PLC), etc.)				

	optical access	273	Multilingual processing	322	Environment measurement
238	Security/code/authentication	274	Natural language processing	323	Life-cycle assessment
239	Copyright/contents protection	275	Semantic analysis/understanding	324	3R (reduce, reuse and recycling)
240	Data base	276	Image recognition/ image processing/ image analysis/image measurement	325	Biodegradable material
241	GPS, GIS				
242	Agent				
243	Simulation				
244	Software/logic programming/ programming language	277	Computer tomography	<b>●Nanotechnology/ materials</b>	
		278	Sentence recognition/ analysis	401	Electrochemistry
245	Sensor	279	Speech recognition/ processing	402	Electrophoresis
246	Remote sensing/ monitoring	280	Pattern recognition	403	Sol-gel process
247	Metrology	281	Visualization	404	Adsorption/diffusion
248	Compound- semiconductor device	282	Cybernetics	405	Plasma
		283	Artificial intelligence	406	Supercritical
249	Organic semiconductor device	284	Human multimodal interface	407	Superlattice
250	Analog circuit/signal processing	<b>●Environment</b>			
251	Digital circuit/signal processing	301	Environment assessment	408	Surface/interface
252	Circuit design/LSI design	302	Environmental harmony technology	409	Thin film/ultra-thin film
253	Integrated circuit	303	Environmental restoration technology (bioremediation, etc.)	410	Colloid
254	Processor/system LSI			304	Global warming
255	System-on-a-chip	305	Carbon dioxide immobilization	412	Tribology/lubrication
256	Other semiconductor devices	306	CFC substitutes	413	Luminescence/ fluorescence
257	Laser/LED	307	Air pollution	414	Corrosion/ corrosion-proof
258	Optical fiber/FBG	308	Water pollution	415	Phase transition
259	Optical storage	309	Soil contamination	416	Corrosion resistance/ thermal resistance
260	Optical modulation	310	Toxic chemicals	417	Rheology
261	Optical modulator/ optical switch	311	Chlororganic compound	418	Organic synthesis/ chemosyntheses
262	Optical interface/ interconnection	313	Environmental hormone	419	Asymmetric synthesis/ asymmetric polymerization/ asymmetric catalyst
263	Optical circuit/optical waveguide/ optical integrated circuit	315	Detoxifying technology	420	Merrifield method
				316	Wastewater treatment technology
264	Imaging device/CCD	317	Waste treatment technology	422	Photocatalyst
265	Display device/display			318	Exhaust gas treatment technology
266	Other optical devices	319	Organic waste	424	Membrane separation
267	Magnetic memory			320	Radwaste
268	Packaging technology/ optical packaging	321	Electromagnetic environment	426	Physical vapor deposition (PVD)
269	Ultrasound device/ SAW			427	Chemical vapor/ chemical vapor deposition (CVD)
270	Superconducting device/SQUID				
271	Quantum effect device				
272	I/O device/storage unit				
				428	Epitaxy
				429	Doping
				430	Ion implantation
				431	Ion adsorption/ ion exchange
				432	Micromanipulation

433	Computing science (materials design, molecular simulation, etc.)	465	Scanned probe microscope/SFM/STM	521	Superconducting energy technology
434	Metals	466	Spectrum/spectroscopy	522	Power electronics
435	Shape-memory alloy	467	X-ray/electron diffraction/neutron scattering	523	Storage devices (cell, capacitor, etc.)
436	Ceramics/metal compound/ inorganic compound	468	Radiation light/electron cyclotron resonance	524	Fuel cells
437	Organic material/ organic compound	469	Nuclear magnetic resonance (NMR)	525	Heat pumps
438	Organic metal	470	Electron spin resonance (ESR)	526	Heat pipes
439	Complex/ligand	471	Mass spectrometry	527	Internal combustion
440	Polymer	472	Chromatography	528	Turbine/gas turbine
441	Electroconductive polymer	473	Laser measurement	529	Cogeneration
442	Carbon material/ diamond/ graphite	474	Micromachining/MEMS	530	Decentralized energy system
443	Carbon nanotube fullerene	475	Molecular device	531	Waste heat utilization/ Cold utilization
444	Self-organization	<b>●Energy</b>		532	Refrigeration technology
445	Crystal	501	Thermal engineering	533	Load leveling
446	Liquid crystal	502	Combustion technology	534	Electric vehicles
447	Amorphous/ amorphous glass	503	Cryogenics	<b>●Manufacturing technology</b>	
448	Fiber	504	Ocean energy	601	Design technology
449	Porous materials	505	Geothermy/ geothermal utilization	602	Assembly technology
450	Particulate/ultrafine particle	506	Solar energy	603	Machine control
451	Piezoelectric material/ piezo	507	Solar cell	604	Mechanics/ mechanical element
452	Thermoelectric material	508	Wind energy	605	Chemical equipment/ chemical engineering
453	Optoelectronic material	509	Biomass	606	High pressure technology
454	Nonlinear optical material	510	Hydrogen energy (production, adsorption, storage, etc.)	607	Vacuum technology
455	Semiconductor	511	Hydrocarbon fuel (methane, methanol, etc.)	608	Fluid technology
456	Compound semiconductor	512	Fuel reforming	609	Oil pressure/ air pressure
457	Organic semiconductor/ organic EL/ polymer LED	513	Coal utilization technology/ coal utilization	610	Actuators
458	Superconducting material	514	Coal gasification	611	Plants
459	Dielectric/ferroelectric substance	515	Methane hydrate	612	Quality control
460	Magnetic material	516	Natural gas	613	Deterioration prediction/diagnosis
461	Self-restoring material	517	Petroleum	614	CAD/CAM/CAE/CAT
462	Functionally-gradient material	518	Energy conversion technology (generation technology etc.)	615	Robots (manipulation, etc.)/ NC (numerical control)
463	Electromagnetic functional material	519	Energy recovery technology (generation technology etc.)	616	Production system/ management
464	Electron microscope	520	Energy transport technology/ generation technology	617	Manufacturing technology (automation, IMS, CIM, etc.)
				618	Etching
				619	Plating (electrolysis/ electroless)
				620	Lithography
				621	Coating

622	Spraying
623	Heat treatment
624	Other finishing
625	Cutting work
626	Electrospark machining
627	Laser processing
628	Plasma processing
629	Microfabrication/precision machining
630	Rolling
631	Molding process (metals)
632	Molding process (resin, rubber, etc.)
633	Die technology/Die
634	Casting/Forging
635	Welding/joint

●Infrastructure

701	Universal design/human engineering/barrier-free
702	International standards (ISO, etc.)
703	Sensibility
704	Usability
705	Safety engineering
706	Risk management
707	Urban disaster prevention
708	Global environmental changes/forecast
709	Natural phenomenon observation/forecast
710	Construction
711	Concrete technology
712	Natural disaster
713	Antiearthquake measures
714	Landslide study
715	Civil engineering

716	River engineering
717	Hydraulics
718	Natural land development/improvement
719	Regional planning
720	Ground transportation system (ITS, AHS)
721	Sea/air traffic
722	Urban development/environment
723	Water and sewerage
724	Water resource/desalination
725	Regional agriculture/rural planning
726	Farmland utilization
727	Landscape gardening/afforestation
728	Soil amendment
729	Forest protection

●Frontier

801	Space science
802	Earth science
803	Geology
804	Meteorology
805	Marine science/resources
806	Aeronautical technology
807	Rockets/space satellite
808	Satellite communication
809	Microgravity

●Social science

901	Technological strategy/business strategy/management strategy
902	Management of

	technology (MOT)/technological management
903	R&D management/product development management/project development management
904	Innovation/technical innovation/national innovation system
905	Technological management model/business model
906	Industrial property right/patent
907	Alliance/consortium/university-industry cooperation/Industry-university-government cooperation/business cooperation/syndicate
908	Business promotion/venture
909	Industrial cluster/regional cluster/regional industrial structure/regional innovation system
910	Technology transfer/technology licensing organization (TLO)
911	Industrial engineering (product, chemical, process, etc.) risk-benefit analysis
912	Industrial engineering (product, chemical, process, etc.) risk-communication

### Allowable Grant Expenses

Calculate the expenses of each item required for R&D and indicate the total. Enter the amounts for "Equipment and supplies expenses," "Travel expenses," "Remuneration and miscellaneous business expenses," and "Other expenses" in the proposal.

Direct expenses must be managed according to the expense items (equipment and supplies expenses, travel expenses, remuneration and miscellaneous business expenses, and other expenses) using a "receipt-and-payment system."

#### 1. Equipment & supplies expenses

This item covers the cost of equipment and supplies. However, general office supplies (e.g., toner cartridges for copiers, ink cartridges for printers, pencils and desks) that can not be identified as being directly used for the research must not be recorded as an expense. General-purpose office equipment such as personal computers and printers must be proven to be needed for exclusive use of the research.

#### 2. Travel expenses

This item covers expenses (transportation expenses, accommodation expenses and daily allowances) concerning overseas/domestic business trips for the research coordinator, research team members and research assistants (for data collection, surveys, research meetings, meetings for announcing research results, etc.)

#### 3. Remuneration and miscellaneous business expenses

This item covers fees for research support (for organization of materials, experiment assistance, translation/proofreading, provision of specialized knowledge, distribution and collection of questionnaires, collection of research data, etc.) and compensation, wages, salary and expenses paid to temporary employment agencies (When signing an employment agreement, the research institute must be the party to the contract.)

#### 4. Other expenses

This item covers expenses other than the above that are needed to carry out the research. Such expenses may include the following: printing charges, copying charges, film development/printing charges, communication charges (postal stamps, phone bills, etc.), shipping costs, costs for outsourcing analysis, lease payments (PCs, automobiles, labware, etc.), costs to repair equipment, transport expenses other than travel expenses, costs for announcing research results (manuscript submission fees to academic journals and the cost for creating a Web site), and costs associated with the application for a patent (the costs required for domestic (application fee, examination request fee, etc.) as well as international applications when all or part of the right(s) belong to an individual. In the case of a joint application with an institute or other organization, the expense shall be limited according to the ownership share.

#### 5. Overhead expenses

Overhead expenses shall be 30% of direct expenses when an institute can accept overhead expenses.

#### Exemplification of major applications of overhead expenses

The following expenses shall be recorded as overhead expenses:

##### ○ Expenses of an administration department

- The cost of upgrading, maintenance and operation of administrative facilities
- Necessary expenses for administrative office work

The cost of purchasing fixtures, supplies expenses, lease payments for equipment, miscellaneous duties, labor costs, communications and transport expenses, fees, domestic and

overseas travel expenses, conference costs, printing costs, etc.

○Expenses of a research department

—Expenses for goods that are commonly used

Costs for purchasing fixtures, supplies expenses, lease payments for equipment, costs of miscellaneous duties, communications and transport expenses, fees, domestic and overseas travel expenses, conference costs, printing costs, magazine and newspaper bills and utility charges

—Necessary expenses for promoting research activities such as application of the research

Labor cost of researchers and research assistants, costs for purchasing fixtures, supplies expenses, lease payments for equipment, cost of miscellaneous duties, communications and transport expenses, fees, domestic and overseas travel expenses, conference costs, printing costs, magazine and newspaper bills and utility charges

—Expenses related to patents

—Expenses for upgrading, maintenance and operation of research building

—Expenses for upgrading, maintenance and operation of administrative facilities for experimental animals

—Expenses for upgrading, maintenance and operation of exchange facilities for researchers

—Expenses for upgrading, maintenance and operation of facilities

—Expenses for upgrading, maintenance and operation of network

—Expenses for upgrading, maintenance and operation of large computers, including supercomputers

—Expenses for upgrading, maintenance and operation of a large computer building

—Expenses for upgrading, maintenance and operation of libraries

—Expenses for upgrading, maintenance and operation of fields, etc.

○Other expenses of related business departments

—Expenses for business development of research results

—Expense for public relations, etc.

\*Expenses other than as above may be recorded as overhead expenses if the head of a research institute determines that they are necessary overhead expenses related to the research work. However, expenses to be recorded as direct expense are excluded.

Postcard Reply Form for Notifying Acceptance of Application Materials  
(Research coordinators must fill in this form.)

50-yen stamp	<table border="1"><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table>								
or postal card									
Your institute address (or home address)									
Your name									

(Front)

1. Name of research coordinator
2. Field
3. Technical challenge No. (2-digit number) □□
4. Your research theme
5. Date of acceptance
6. Acceptance no.
 Grant Group, R&D Promotion Department New Energy and Industrial Technology Development Organization (NEDO)
 Muza Kawasaki Central Tower 20F, 1310, Omiya-cho, Saiwai Ward, Kawasaki City 212-8554 Japan
 TEL: +81-44-520-5174 FAX: +81-44-520-5178

(Back)

- The research coordinator's institute address (or home address) and name should be filled in on the front of the postcard.
- All necessary items should be filled in on the back of the postcard except for the date of acceptance and acceptance number that will be completed by NEDO.
- The postcard should be submitted with the other application materials.
- This reply postcard will be returned about two weeks after the application period.
- In the case of electronic application, a postcard does not need to be submitted.

Outline of Forums and Individual Meetings

## 1. Date and place

Place	Date and time	Venue	Address	Phone Number	Nearest station
Sapporo	December 11, 2007 1:00 p.m.: Briefing 2:30 p.m.: Consultation	Conference Room, No.1, the First Sapporo Combination Gov. Building 6F	2-1-1, Kita 8-jo Nishi, Kita Ward, Sapporo 060-0808 Japan	+81-11-709-2311	JR Sapporo
Kawasaki	December 3, 2007 1:00 p.m.: Briefing 2:30 p.m.: Consultation	Temporary office, NEDO 21F	Muza Kawasaki Central Tower 21F, 1310, Omiya-cho, Saiwai Ward, Kawasaki 212-8554 Japan	+81-44-520-5174	JR Kawasaki
Osaka	December 7, 2007 1:00 p.m.: Briefing 2:30 p.m.: Consultation	Conference Room, NEDO Kansai Branch Office	Umeda Dai Building 16F, 3-3-10, Umeda, Kita Ward, Osaka 530-0001 Japan	+81-6-4306-5021	JR Osaka
Fukuoka	December 5, 2007 1:00 p.m.: Briefing 2:30 p.m.: Consultation	Conference Room, No.7, Kyushu Bureau of Economy, Trade and Industry	Fukuoka Combination Gov. Main Building 8F, 2-11-1, Hakataeki-Higashi, Hakata Ward, Fukuoka 812-8546 Japan	+81-92-482-5461	JR Hakata

## 2. Contents

## (1) Briefings and question-and-answer sessions

Pre-registration is NOT required. Please come to the venue.

Program contents have changed since previous solicitation for proposals. Please participate in the sessions if possible.

## (2) Individual meetings (in order of application for pre-registration)

Pre-registration is required. Applicants must send an e-mail to the following address with (1) Institute, (2) Name, (3) Desired venue, (4) Acceptance No. (for applicants not previously selected e.g., 07A1234), (5) Field and (6) Research theme (If this is missing, reference data will NOT be prepared.):

E-mail address: [sangi-201@nedo.go.jp](mailto:sangi-201@nedo.go.jp)

Contents of Prior Evaluation

## 1. Evaluation items and evaluation viewpoint

## (1) Evaluation from a technological viewpoint

## ① Validity of R&amp;D target

The R&D target must be set concretely and clearly at a high level.

## ② Validity of R&amp;D plan

The R&D plan must be highly possible from the viewpoint of accomplishment. It must also include a research budget, and in the case of a research team, the plan must include an explanation of the necessity of team research. (For the international research field, an effective international research collaboration system must be established.)

## ③ Novelty, originality and innovativeness of R&amp;D

The R&D contents must be novel, original and innovative (and include field synthesis for innovative and synthetic fields of technology).

## (2) Evaluation from the viewpoint of industrial application

## ④ Possibility of practical application

Practical application/commercialization must be highly possible. Applicants must have an advantage in practical application with respect to patents (including pending patents) or other results related to the R&D. (For social science of industrial technology, the wording "Practical application/commercialization" above shall be replaced with "Application to industry/society.")

## ⑤ Spillover effects on industry/society

Following commercialization, certain spillover effects on industry/society must be possible. (For social science of industrial technology, the expression "commercialization" shall be replaced with "application to industry/society.")

## ⑥ Possibility of collaboration with industry

(This will be evaluated in fields other than social science of industrial technology.)

Private companies must be involved in joint research related to the proposed R&D.

## ⑦ Energy-saving effect or petroleum substitute effect

The energy-saving effect must be promising or the research must be effective for the promotion of petroleum substitutes.

## 2. Weighting of evaluation items

Evaluation item	Category/Field						
	Category A: Life science, information technology, environment, nanotechnology/ materials and manufacturing technology fields	Category B: Environment and energy field	Category C: Integration of advanced technology	Category D: Social science of industrial technology	Category E: International field (International collaboration on innovative technology with international technical synthesis)	Category E: International field (Social needs-responsive international research collaboration)	
(1)	① Validity of R&D target	10%	10%	10%	15%	10%	10%
	② Validity of R&D plan	15%	15%	15%	15%	30%	30%
	③ Novelty, originality and innovativeness of R&D (+ synthesis for Category C)	35%	25%	50%	35%	30%	25%
(2)	④ Possibility of practical application	20%	15%	5%	25%	10%	10%
	⑤ Spillover effects on industry/society	5%	5%	10%	10%	10%	15%
	⑥ Possibility of collaboration with industry	10%	10%	10%	-	5%	5%
	⑦ Energy-saving effect or petroleum substitute effect	5%	20%	-	-	5%	5%

Standard Calorific Values by Energy Source (Crude Oil Equivalent)

(1 kcal = 4.18605 kJ)

In 4.(10) of Exhibit 1, "Application Format," the energy-saving effect or petroleum substitute effect to be realized should be based on a formula for computation of an integrated value of crude oil equivalent by 2030. For example, if it is assumed that a petroleum substitute will be commercially available from 2015, the petroleum substitute market scale in 2015 will be 5 million kiloliters per year of gasoline consumption and the market share will be 1%. The formula for computation in 2015 will then be as follows:

5 million kiloliters per year (gasoline consumption) x 0.9058 (crude oil conversion factor) x 1% (market share) x 0.9 (success rate) = 40.8 thousand kiloliters per year.

If it is assumed that the petroleum substitute market scale increases 5 million kiloliters per year and market share increases 2% per year, then the formula for computation in 2030 will be:

5.75 million kiloliters per year (gasoline consumption) x 0.9058 (crude oil conversion factor) x 31% (market share) x 0.9 (success rate) = 1.45 million kiloliters per year.

The accumulated value from 2015 to 2030 is 11.50 million kiloliters, thus the integrated value of crude oil equivalent by 2030 is 11.50 million kiloliters.

An explanation of the calculation basis for market scale and market share should be entered in the box "Explanation of energy-saving effect or petroleum substitute effect."

Energy source		Standard unit	Kcal conversion	Crude oil conversion factor
<b>Coal</b>				
Imported coal	kg	29.0 MJ	6,928 kcal	0.7592
Coal for coke making	kg	29.1 MJ	6,952 kcal	0.7618
Blowing coal	kg	28.2 MJ	6,737 kcal	0.7382
Imported steam coal	kg	25.7 MJ	6,139 kcal	0.6728
Imported anthracite	kg	26.9 MJ	6,426 kcal	0.7042
<b>Coal products</b>				
Coke	kg	29.4 MJ	7,023 kcal	0.7696
Coke oven gas	Nm <sup>3</sup>	21.1 MJ	5,041 kcal	0.5524
Blast furnace gas	Nm <sup>3</sup>	3.40 MJ	815 kcal	0.0893
Converter gas	Nm <sup>3</sup>	8.40 MJ	2,009 kcal	0.2202
<b>Oil</b>				
Crude oil	/	38.2 MJ	9,126 kcal	1.0000
NGL/Condensate	/	35.3 MJ	8,433 kcal	0.9241
<b>Petroleum products</b>				
LPG	kg	50.8 MJ	12,136 kcal	1.3298
Naphtha	/	33.6 MJ	8,027 kcal	0.8796
Gasoline	/	34.6 MJ	8,266 kcal	0.9058
Jet fuel	/	36.7 MJ	8,767 kcal	0.9607
Kerosene	/	36.7 MJ	8,767 kcal	0.9607
Light oil	/	37.7 MJ	9,006 kcal	0.9869
Bunker A	/	39.1 MJ	9,341 kcal	1.0236
Bunker C	/	41.9 MJ	10,009 kcal	1.0969
Grease	/	40.2 MJ	9,603 kcal	1.0524
Other heavy petroleum products	kg	40.9 MJ	9,771 kcal	1.0707
Oil coke	kg	29.9 MJ	7,143 kcal	0.7827
Refinery gas	Nm <sup>3</sup>	44.9 MJ	10,726 kcal	1.1754

Energy source		Standard unit	Kcal conversion	Crude oil conversion factor
<b>Gas</b>				
Combustible natural gas				
Imported natural gas (LNG)	kg	54.6 MJ	13,043 kcal	1.4293
Domestic natural gas	Nm <sup>3</sup>	43.5 MJ	10,392 kcal	1.1387
City gas				
City gas	Nm <sup>3</sup>	44.8 MJ	10,702 kcal	1.1728
<b>Power</b>				
Power generation: Generating-end heat (Generating efficiency: 39.98%)	kWh	8.81MJ	2,150 kcal	0.2306
Consumption: Power generation heat	kWh	3.60 MJ	860 kcal	0.0942
<b>Heat</b>				
Consumption: Vapor generation heat (100°C, 1 air pressure, dry saturated vapor)	kg	2.68 MJ	640 kcal	0.0702

List of Academic Societies

■ Electricity/Machinery ■					
101	Japan Institute of Electronics Packaging	304	Japan Petroleum Institute	446	Japan Society of Drug Delivery System
102	Institute of Electrostatics Japan	305	Japanese Association for Petroleum Technology	■ Agriculture ■	
103	Electrochemical Society of Japan	306	Cellulose Society of Japan	501	Botanical Society of Japan
104	Institute of Electrical Engineers of Japan	307	Society of Fiber Science and Technology, Japan	502	Japanese Society for Plant Cell and Molecular Biology
105	Institute of Electrical Installation Engineers	308	Chemical Society of Japan	503	Psychopathological Society of Japan
106	Institute of Electronics, Information and Communication Engineers	309	Japan Society on Adsorption	504	Japanese Society of Plant Physiologists
107	Remote Sensing Society of Japan	310	Society of Rubber Industry, Japan	505	Japan Society for Bioscience, Biotechnology, and Agrochemistry
108	Japan Society of Plasma Science and Nuclear Fusion Research	311	Japanese Biochemical Society	■ Construction ■	
109	Society of Instrument and Control Engineers	312	Adhesion Society of Japan	601	Japanese Geotechnical Society
110	Institute of Systems, Control and Information Engineers	313	Molecular Biology Society of Japan	602	Japan Society of Civil Engineers
111	Society of Automotive Engineers of Japan	314	Japan Society for Analytical Chemistry	603	Acoustical Society of Japan
112	Japan Society for Precision Engineering	315	Japanese Peptide Society	604	Architectural Institute of Japan
113	Japan Society for Abrasive Technology	316	Japanese Society for Synchrotron Radiation Research	605	Japan Concrete Institute
114	Japan Society of Mechanical Engineers	317	Society of Synthetic Organic Chemistry, Japan	606	Seismological Society of Japan
115	Japanese Society of Microscopy	■ Medicine/Biology ■		607	City Planning Institute of Japan
116	Japan Society of High Pressure Science and Technology	401	Japanese Society of Allergology	■ Information ■	
117	Japan Society for Aeronautical and Space Sciences	402	Japan Radiological Society	701	Institute of Image Information and Television Engineers
118	Japan Society of Thermophysical Properties	403	Japanese Society of Breeding	702	Information Processing Society of Japan
119	Combustion Society	404	Genetics Society of Japan	703	Japan Society for Software Science and Technology
		405	Japan Society of Gene	704	Virtual Reality Society

	of Japan
120	Japan Society of Refrigerating and Air Conditioning Engineers
121	Robotics Society of Japan
122	Japan Welding Society
123	Laser Society of Japan
124	Japanese Society of Tribologist
<b>■ Materials/Physics ■</b>	
201	Japan Institute of Light Metals
202	Mining and Materials Processing Institute of Japan
203	Society of Nano Science and Technology
204	Japanese Liquid Crystal Society
205	Rare Earth Society of Japan
206	Japan Institute of Metals
207	Crystallographic Society of Japan
208	Society of Materials Science, Japan
209	Ceramic Society of Japan
210	Japan Society for Technology of Plasticity
211	Japan Foundry Engineering Society
212	Japan Society for Composite Materials
213	Membrane Society of Japan
214	Surface Finishing

	Therapy
406	Japanese Society for Virology
407	Japan Association of Aerosol Science and Technology
408	Japanese Society for Hygiene
409	Japanese Cancer Association
410	Japan Society of Clinical Oncology
411	Japan Surgical Society
412	Japan Veterinary Medical Association
413	Japanese Society for Regenerative Medicine
414	Japan Society for Cell Biology
415	Japanese Society for Magnetic Resonance in Medicine
416	Japanese Circulation Society
417	Japanese Neural Network Society
418	Japan Neuroscience Society
419	Japanese Society for Artificial Organs
420	Japan Society of Human Genetics
421	Japanese Orthopedic Association
422	Ecological Society of Japan
423	Society for Biotechnology, Japan
424	Biophysical Society of Japan
425	Physiological Society of

	of Japan
705	Japanese Society for Artificial Intelligence
<b>■ Energy/Environment ■</b>	
801	Japan Society of Energy and Resources
802	Japan Society of Resources and Energy
803	Hydrogen Energy Systems Society of Japan
804	Japan Institute of Energy
805	Gas Turbine Society of Japan
806	Atomic Energy Society of Japan
807	Japan Solar Energy Society
808	Japan Association for Wind Engineering
809	Japan Wind Energy Association
810	Society of Environmental Science, Japan
811	Resources Processing Society of Japan
812	Japan Society for Environmental Biotechnology
813	Society of Heating Air-Conditioning and Sanitary Engineers of Japan
814	Japan Society for Atmospheric Environment
815	Meteorological Society of Japan
816	Japan Society on Water Environment
817	Japan Society of Hydrology and Water Resources
818	Geothermal Research

	Society of Japan
215	Japan Society of Polymer Processing
216	Society of Powder Technology, Japan
217	Japan Society of Powder and Powder Metallurgy
218	Society of Inorganic Materials, Japan
219	Materials Research Society of Japan
220	Society of Rheology, Japan
221	Japan Society of Applied Physics
222	Meeting on Cryogenics and Superconductivity
223	Cryogenic Association of Japan
224	Magnetics Society of Japan
225	Heat Transfer Society of Japan
226	Physical Society of Japan
227	Spectroscopical Society of Japan
228	Society of Exploration Geophysicists of Japan
229	Japan Society of Applied Electromagnetics and Mechanics
230	Iron and Steel Institute of Japan
■ Chemistry ■	
301	Society of Chemical Engineers, Japan
302	Society of Polymer Science, Japan
303	Catalysis Society of Japan

	Japan
426	Protein Science Society of Japan
427	Japan Society of Ultrasonics in Medicine
428	Japanese Society of Carbohydrate Research
429	Japanese Society for Dialysis Therapy
430	Japanese Society of Internal Medicine
431	Japan Neurosurgical Society
432	Japanese Society for Biomaterials
433	Japanese Society of Developmental Biologies
434	Japanese Society of Microbial Ecology
435	Japanese Society of Pathology
436	Japanese Society for Immunology
437	Pharmaceutical Society of Japan
438	Japanese Pharmacological Society
439	Japanese Association of Rehabilitation Medicine
440	Rehabilitation Engineering Society of Japan
441	Japan Society for Laser Surgery and Medicine
442	Japan Bioindustry Association
443	Society of Biomechanism
444	Japanese Society for Bacteriology
445	Japanese Society for Medical and Biological Engineering

	Society of Japan
819	Japan Society of Waste Management Experts
■ Others ■	
901	Japan Society for Science Policy and Research Management
902	Oceanographic Society of Japan
903	Japan Association of Zeolite
904	Japan Industrial Management Association
905	Japan Society for Food Science and Technology
906	Japanese Society of Fisheries Science
907	Japan Society for Production Management
908	Geochemical Society of Japan
909	Japanese Society of Animal Science
910	Geological Society of Japan
911	Astronomical Society of Japan
912	Japanese Society of Soil Science and Plant Nutrition
913	Japan Ergonomics Society
914	Surface Science Society of Japan
915	Japan Oil Chemists' Society
916	Japan Society of Corrosion Engineering