2013 Call for Proposals for Feasibility Projects utilizing Korean Engineers Abroad under International Collaborative R&D Program

In an effort to keep up with the global trend of openness, convergence and globalization of industrial technologies, "Feasibility Projects utilizing Korean Engineers Abroad" that supports collaborative technology development between Korean engineers abroad and domestic industries, academies and research institutes is hereby announced. Organizations and companies interested are welcome to apply according to the procedures set forth below.

July 29, 2013

Minister of Trade, Industry and Energy

1. Purpose

○ Generate excellent international collaborative R&D projects to secure strategic technologies and advanced technologies for domestic industries, to globally commercialize the technologies developed, and to establish a bridgehead foroverseas market penetration.

2. Program Description

A. Program Description

○ Targeting Korean engineers abroad and domestic industries, academies and research institutes, provide funding for preactivities with an aim of generating an international collaborative R&D project.

○ Form an international collaborative R&D project using the funding for preactivities, and prepare a proposal as an outcome. The proposal will be evaluated when new international collaborative R&D projects are selected.

International Collaborative R&D Program Overview
• Purpose: secure strategic technologies and advanced technologies for domestic industries, establish a bridgehead for overseas market penetration, accomplish global commercialization, and secure global technology cooperation network through international collaborative R&D.
• Qualification for Participation
- Lead organization : domestic industries, academies and research institutes(when academies and research institutes are a lead organization, there should be a participating company in the consortium)
- Domestic participating organization: no limitationonindustries, academies and research institutes(autonomous)
- Overseas participating organization: one or more overseas research organization (no limitation on industries, academies and research institutes) (mandatory)
• Royalty-collecting Program
• Fundingsize and period: could be different depending on the yearly implementation plan (average funding size for each project: approximately KRW 500 million/year, funding period: 2~5 years)

B. Eligibility for Application

○ Lead organization: overseas industries, academies and research institutes (in which a Korean engineer abroad is employed)*, or domestic industries**, academies and research institutes

* Korean engineer abroad is a person who works in the field of science and industrial technology among the overseas Koreans defined in Article 2 (definition) of the “Departure, Entry, and Legal Status of Overseas Koreans Act”, and Article 2 (definition of overseas Koreans) and Article 3 (definition of Koreans with foreign nationality) of enforcement ordinance of the same low.

** Small and medium-sized enterprise (SME) is an enterprise defined in Article 3 (Scope of SME) of enforcement ordinance of the “Minor Enterprises Act”.

○ Participating organization: overseas industries, academies and research institutes (in which a Korean engineer abroad is employed), or domestic industries, academies and research institutes

○ Organizations not eligible for application

- A company under restrictions on participation in national research and development programs, or an organization of which head is under restrictions on participation as of the application deadline.
- A case where a lead organization fails to meet the eligibility for application, or the details of the proposed project are not suited for the basic purposes, R&D characteristics, or requirements set forth in this Call.

- A case where the technology of the proposed project is found to be 'already-developed', identical to technologies that other companies have been already funded to develop, or similar to an already-funded project of the applyingcompany.

  * Prior art search can be performed through “Program Management → R&D information search → R&D projects” of National Science and Technology Information Service (www.ntis.go.kr).

- A case where, as of the application deadline, those participating in the proposed project (a leading organization, participating organizations or a principal investigator) fail to fulfill their obligations (that is, submission of various required reports, payment of royalties, submission of a report on royalties payment plan, payment of a balance after settlementoran amount subject to restitution).

- Those under restrictions on participation in national research and development programs, a defaulter of financial institutions (a leading organization, the head of a leading organization, participating organizations, the head of participating organizations, or a principal investigator).

- Other cases in which a project cannot be supported according to‘Common Operational Regulations’ and ‘Evaluation & Management Guidelines (International Technology Cooperation Program)’ for the Knowledge Economy Technology Innovation Program, or a proposal is subject to returning, etc.

C. Funding Size and Period

○ Government contribution: Support for new projects is KRW 150 million

Funding size	Funding amount per project	Funding Period	Number of Projects to be funded (not yet confirmed)
KRW 150 million	KRW 30 million	6 months or less	5

○ Royalties will not be collected

D. Evaluation Criteria and Procedure

○ Evaluation index: creativity (40), marketability(35), and networking(25)

  * Creativity: Innovativeness and creativity of the proposed technology, originality of the proposed idea, and necessity of government funding
  * Marketability: possibility of R&D success, and economic spillover effects over domestic industries
  * Networking: planning quality of preplanning activities

○ Evaluation Procedure

- Evaluation is performed utilizing an evaluation committee, in principle, and the evaluation committee member will be selected among the Knowledge Economy Technology Innovation Reviewer Group according to Article 6 of the Common Operational Regulationsfor the Knowledge Economy Technology Innovation Program.
- Projects to be funded will be selected considering the budget among the projects whose total score is 70 or more.

3. Areas to be proposed (See Appendix for details)

Number	Theme Title
1	Develop a technology in which human cardiomyocytes are induced and differentiated from pluripotent stem cells, and are used for cardiovascular diseases and heart diseases (arrhythmia, etc.)
2	Develop a technology in which uniform graphene-armored bubbles are synthesized and used for imaging and therapies
3	Develop a corrosion-resistant/water-resistant/anti-fouling coating materials that are environment-friendly, which are used for graphene-based ships and marine structures
4	Develop a data mining methodology forlarge scale health record data
5	Develop a novel technology to effectively analyze big data; Big data analysis algorithm analysis method, and analysis framework
6	Develop a wearable device-basedpersonalized big data analysis model
7	Develop a Digital-Radio separation structure networking-based technology for smart cars

4. Application Method and Procedure

A. Application Procedure

Task	Timeline	Note
Submission of Proposals	18:00September 13(Fri.), 2013	www.pms.re.kr
↓		
Evaluation Committee for Selection	~Early October 2013	Evaluate the projects submitted
↓		
Agreements forthe Projects Selected	~Early November 2013	Finalize the projects to be funded
↓		
Project Carry-out	October 1,2013~ March 30, 2014 (6 months)	KIAT

※The above schedule is subject to change at the discretion of the dedicated organization

B. Application Method

○ Form issue: see KIAT Korean and English website “News & Events” (www.kiat.or.kr), GT Online program and events bulletin board(www.gtonline.or.kr)

○ Fill-out guideline: mixed use of Korean and English, no limitation on writing style

○ Application means: KIAT project submission system (www.pms.re.kr)

○ Submission placeand Submission period: www.pms.re.kr, ~18:00 September 13(Fri.), 2013(Korean time)

www.pms.re.kr → log in→ Project Application → Select PMS call name (2013 Call for Proposals for Feasibility Projects utilizing Korean Engineers Abroad under International Collaborative R&D Program)→Online Application → Submit→ Print out filing receipt and confirm submission

<Sign-upfor membership→ Online registration → File uploading → Filing receipt printout>

① Sign-up for membership: check if a PI or an executing organization is already registered with the KIAT Project Management System (http://www.pms.re.kr), and if not registered, sign up for new membership.

* Membership sign-up for foreigners:

- Those who have foreignregistration number, sign-up for membership and input scientist and engineer registration number
- Those who do not have foreign registration number can submit a proposal after signing-up with virtual resident registration number, checking for the participation of the project, and modifying the resident registration number

* Scientist and engineer registration number: scientist and engineer registration number will be issued after signing-up for membership as foreigner at the National Science & Technology Information Service (www.ntis.go.kr)

② Online registration: enter part of the information onapplying organizationsand a proposal; a PI shall input the information in person in the proposal submission system(http://www.pms.re.kr)at the time of application form submission.

③ File uploading: complete and upload the whole contents of a proposal; download a document form file such as a Hangul filefrom the website,complete the document offline, and then upload the completed document onto the KIAT Project Management System(http://www.pms.re.kr).

④ Filing receipt printout: print out the filing receipt, and confirm that the document had been submitted.

C. Inquiry: KIATInternational Cooperation Planning Team

○ Seung Hae LEE, Senior Researcher (02-6009-3193, votrevoix@kiat.or.kr)

○ Ja-un HWANG, Researcher (02-6009-3194, hju1005@kiat.or.kr)

D. Required Documents

No	Documents	Feasibility Project
1	Proposal[1](Korean and English)	◯
2	Dun and Bradstreet(D&B) Business Information Report [2] (For Korean enterprises, accounting audit report of the previous year can be submitted as a substitute)	◯
3	LOI of participating organizations	When there are participating organizations
4	Copy of the Certificate for Industrial R&D Center (only when a Korean enterprise is a leading organization)	◯
5	Resume of a principalinvestigator of a leading organization and project leaders of participating organizations	◯
6	Agreement or MOU signed between a leading organization and domestic/overseas participating organizations	When there are participating organizations
7	A Letter of Consent by an organization in which external researchers are originally employed, consenting to their participation in the project	When applicable

1) Prepare for 10 pages or less in English (not including cover, table of contents and appendices)
2) Companies who participate as a domestic/overseas leading organization or participating organizations are required to submit. D&B Report is a corporate information report provided when a DUNS(Data Universal Numbering System) Number is given. It takes about one (1) week from request until issuance of the report. (For report issuance in Korea, contact NICE D&B Global Team, Tel: 02-2122-2342.)

5. Other Details

○ Those participating in this feasibility project have an obligation to submit an international collaborative R&D project proposal.

- This feasibility study project is a preceding step to generate an R&D project, therefore those participating in the feasibility project have an obligation to generate an R&D project and to form a project consortium through sourcing participating organizations of partner countries and through technological and economic feasibility studies.

○ If there are no participating organizations of partner countries, specific means to find participating organizations shall be clearly stated during a preplanning stage.

○ Special regulations regarding estimationand settlement of a project budget will be applied for overseas participating organizations.

- For foreign organizations, guidelines regarding estimation, use and settlement of a project budget stated in government R&D regulations of the corresponding country will be accepted.

* See Knowledge Economy Technology Innovation Program Evaluation and Management Guideline (International Technology Cooperation Program) 8. Estimation and Adjustment of Project Budget

○ The documents submitted will not be returned.

6. Other Information

○ Call for Proposals for “Creative and Innovative Feasibility Projects” to generate excellent international collaborative R&D projects is currently underway. Those interested are welcome to apply.

<International Collaborative R&D Creative and Innovative Feasibility Projects>

- Period of Call: July 12,2013 ~ August 30,2013 (18:00)
- Technology Fields to be Proposed

No.	Theme Title
1	Develop an outbreath analyzing sensor for the diagnosis of lung cancer and diabetes
2	Develop an original technology of carbon-based fuel cell stack
3	Develop a heat treatment/roll forming-fused manufacturing technology that is highly productive for the manufacture of super high strength car body components of 1.5GPa class
4	Develop a multi-nozzle system used for a 3-dimensional printer for the manufacture of flexible organic illumination devices
5	Develop a system to treat and recycle water generated when resources such as coal bed/shale gas are developed

- SeeKIAT webpage (www.kiat.or.kr) for details
- Inquiry: KIAT Technology Cooperation Support Team, Hongryel Choi, Senior Researcher(02-6009-3205, felix3254@kiat.or.kr)

[Appendix] Technology Development Details of Feasibility Projects Utilizing Korean Engineers Abroad

No.	Technology Development IDEA	Details of Technology Development
1	Develop a technology in which human cardiomyocytes are induced and differentiated from pluripotent stem cells, and are used for cardiovascular diseases and heart diseases (arrhythmia, etc.)	- Develop a bioreactor to efficiently and effectively differentiate and maturate human cardiomyocytes for the treatment of heart diseases - Develop a technology to grow human stem cell-derived cardiomyocytes chips c-(Ms)to a level that they can function as cardiomyocytes - Develop a nano-based bioreactor that can efficiently control electrical and biochemical stimuli, and can control while effectively increasing cell growth - Identify the potential of matured cardiomyocytes through clinical trials on animals - Develop a control method regarding the injection of cellular control culture medium of a bioreactor, etc.
2	Develop a technology in which uniform graphene-armored bubbles are synthesized and used for imaging and therapies	- Develop a technology to synthesize grapheme-based monodisperse microbubbles for the diagnosis and treatment of diseases such as cancer - Synthesize microbubbles having a uniform size that block the fluctuation of image data - Verify the utility and stability of multifunctional bubbles when carrying out image diagnosis and thermal therapy * Use a technology (ex. graphene oxide) to give treatment effects(thermal therapy) - Propose a research scheme to connect with technologies that develop diagnosis and treatment equipment (ex. ultrasound, photoacoustic equipment, etc.) that are closely related to the proposed technologies of this project
3	Develop a corrosion-resistant/water-resistant/anti-fouling coating materials that are environment-friendly, which are used for graphene-based ships and marine structures	- Develop environment-friendly grapheme-based coating materials, which are novel nano-materials - Develop a corrosion resistant technology that blocks H_2O, O_2, Na^+ and Cl^- - Develop a technology that prevents marine life adherence - Develop a room temperature curing technology that does not use a UV absorbent
4	Develop a data mining methodology for large scale health record data	- Analyze existing methods of association mining between variables used in health record data, and propose an improved method - Select variables suitable for health record dataanalysis and clustering algorithm - Abnormal pattern detection algorithm - Time seriespatternminingandvisualization

5	Develop a novel technology to effectivelyanalyze big data; Big data analysis algorithm analysis method, and analysis framework	- Develop and verify a theory that can effectively and readily analyze and process massive scale data with various forms - Develop and prove an optimized architecture of S/W, H/W and Platform to reduce H/W costs newly introduced for big data processes - Develop and verify an extensible model in which domain experts can readily analyze and reduce the time using big data - Develop and prove a performance-improved model that can overcome process limits (ex. performance) of existing big data solutions, or can effectively reduce the time - Develop the validity of new technology that can effectively analyze big data analysis * Develop a comparative analysis model that compares with existing big data S/W and H/W
6	Develop a wearable device-based personalized big data analysis model	- Develop a system structure that interconnects with real-time personalized data gathering, and develop a linking interface technology - Develop a technology to generate and provide information necessary for personal decision-making - Develop an information-sharing and information-utilizing technology modeling for small-scale groups - Develop a data process technology and intermediate process technology of biometric data
7	Develop a Digital-Radio separation structure networking-based technology for smart cars	- Develop a broadband wireless access technology for cars through a separation design form of a DU(Digital Unit) and an RU(Remote/Radio Unit) - Design and develop an SDR(Software Defined Radio) block and a Protocol stack that interconnect with an OBU(On-Board Unit) and an RDU(Road-side Unit) - Develop an interface function between a DU(Digital Unit), an RU(Remote/Radio Unit), an EMS(Element Management System) and a Gateway - Verify technology and system performance through Pilot Testbed building - Develop a DU-RU separation network-based new broadband ITS service model