30th June, 2011

The G8 Research Councils Initiative on Multilateral Research Funding
Theme: Material Efficiency – A first step towards sustainable manufacturing

Instructions for Pre-proposals 2011

A copy of the Pre-proposal must be submitted by the Leading PI to the Call Secretariat (JSPS, Japan) at http://www.jsps.go.jp/j-bottom/g8-initiative.html by midnight Japanese Standard Time on 30th September, 2011.
Pre-proposals are to be submitted through the electronic proposal system and Leading PIs are requested to write the proposals directly into the system. However, MS Word File Form could be used in the process of completing the proposal and used to share the proposal among your consortium members.

Note: Both Leading and Partner PIs should make sure to check the information provided by their national Funding Agencies and to contact them if needed. There may be additional national application requirements in Pre-proposal phase.

General guidance for all applicants:

- the proposal should be written in English.
- the different sections of the application should not exceed the prescribed maximum number of characters. **Extra characters will be removed.**
- any documents other than those requested as part of the proposal **will not be forwarded** to Panel members.

1. Project title

Give a project title which clearly describes the research content of your consortium.

2. Duration

Indicate the duration of the project and anticipated start date. The starting date of the project should be no later than June 1, 2012 and no earlier than May 1, 2012. While the duration of the project may exceed three years, it should be noted that the agreement of the Funding Agencies is for three years of support.

3. Project reference

This is completed by the Call Secretariat for administration purposes only.

4. Project summary (2100 characters or less, suitable for public release)

Provide a summary describing the proposed research program and expected impact in plain language suitable for general audience.

This summary will be published when the proposal is selected.

5. Key words

Give at least three and up to ten keywords that represent the scientific content of your proposal. These will be used to assist in identifying reviewers.

6. Summary of applicants

Provide brief summary information on consortium members and their roles in the consortium.

7. Principal investigators

Provide detailed information on each Leading and Partner PI, including institution and contact details.

For each PI, 1400 characters summary of key achievements that are relevant to the research proposed and up to 5 most recent relevant publications should be included.

8. Objective (Maximum 7000 characters, not including reference list)

Describe the objective of your consortium's research in accordance with the instructions in the application form.

9. Provisional Financial Summary

Describe your Provisional Financial Summary for each Leading or Partner PI in the table. The currency unit must be K€.

30th June, 2011

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Second Call: Interdisciplinary Program on Material Efficiency – A first step towards sustainable manufacturing

For most materials used to manufacture equipment and products, global stocks are still sufficient to meet anticipated demand, but the environmental impacts of materials production and processing, particularly those related to energy, are rapidly becoming critical. These impacts can be ameliorated to some extent by the ongoing pursuit of efficiencies within existing processes, but demand is anticipated to double in the next 40 years, and this will lead to an unacceptable increase in overall impacts unless the total requirement for material production and processing is reduced.

Material efficiency forms part of the suite of philosophies towards sustainability and any proposal should give consideration to how the research undertaken will have wider impact in the long term on this agenda.

This Call aims to support collaborations between experts in research areas related to the global challenge of materials efficiency to address one or more of seven potential strategies for reducing material demand through material efficiency:

- longer-lasting products;
- modularisation and remanufacturing;
- component re-use and re-cycle;
- designing products with less material;
- rethinking products and their use;
- redesigning the manufacturing processes ;
- replacement of scarce and expensive elements, notably those critical for energy applications.

The Call will support interdisciplinary projects with the potential of creating a step change in the approach taken towards the sustainable use of material resources and the contribution and impact that this will have upon the wider cradle-to-cradle design and manufacturing principles.

The Call includes within its scope the entirety of the industrial system – from material

extraction, through supply chains, logistics, manufacturing, and distribution - and recognizes the global nature of that system. Proposals are expected to show how they address this global approach in a synergistic way and to justify the need for the international collaboration proposed. The Call emphasizes *the potential future role of manufacturing in supporting a sustainable global economy*, and encompasses all parts of the materials hierarchy.

The collaborative and interdisciplinary nature of the Call is expected to encourage proposals that bring different sets of knowledge together in a concerted effort toward solving a problem. Proposals that focus on basic materials science or current manufacturing processes in isolation are unlikely to meet the requirements.

The Call emphasizes the systemic nature of material efficiency and seeks proposals that show awareness of system interactions, and propose novel approaches to influencing the system. In particular,

- Each proposal must firstly position itself within the larger global material system and demonstrate that the scope of the research (what is included in the proposal and what is left outside) is
  - Clear
  - Logical and coherent (in that it does not create an unrealistic simplification – e.g. tackling a material recycling problem that assumes that the waste stream will return from end users in a clean and homogeneous state, an assumption that is not supported by our knowledge of current or future predicted practice)
  - Of significant global scale of impact (show that solving the problem is worthwhile)
- Each proposal must secondly demonstrate its contribution to improved materials efficiency
  - In the synergism made possible by the multi-disciplinary skills held by the team
  - By explaining the relationship between the proposed research and its impact on sustainability of the materials system

When preparing the Pre-proposal it is useful to remember the Selection Criteria on which it will be evaluated.

1. Quality/Intellectual Merit

- *Scientific quality and innovativeness of the joint research plan*
- *Added value to be expected from the research collaboration*

How well does the activity advance knowledge and understanding within its own field or across different fields?

Does the proposal contribute to scientific excellence and significant progress toward the state of the art?

To what extent does the proposed activity suggest and explore creative, original concepts?

If these partnerships were in place already what does this new funding allow them to do that they could not do otherwise?

What is the added value of the international cooperation?

2. Societal/Broader Impacts

- *Expected impacts: e.g. scientific, technological, economic, societal*
- *Opportunities for early career researchers*

What may be the benefits of the proposed activity to society?

To what extent will it enhance infrastructure/capabilities for research and education, such as training, learning, networking and partnerships?

Does the project involve early career researchers?

Does the research collaboration focus on global challenges for which solutions can only be achieved by global scientific approaches?

3. Personnel/Quality of the Consortium

- *Competence and expertise of team and complementarities of consortium (inter-disciplinary / inclusion of all necessary expertise)*

How well qualified are the proposers (Leading Principal Investigator and team) in terms of knowledge, expertise and experience to conduct the project?

What is the quality of previous work in terms of past or potential contributions to, and impact on the proposed and other areas of research?

Is the Leading Principal Investigator team (including any identified Co-Principal Investigators) able to lead the project, e.g. having strong management and leadership skills, or having complementarity of expertise and synergy of the members of the team?

4. Resources and Management

- *Appropriateness of resources and funding requested*
- *Balanced cooperation*

How well conceived and organized is the proposed activity?

Is there an operational plan with well defined milestones in place?

Is the coordination plan adequate?

Is there sufficient access to resources?

Are the requested investments well justified and relevant?

Are the scientific and financial contributions of the partners from each country well balanced?

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