

2nd March, 2009

Dear Mr. Prime Minister,

The National Knowledge Commission considers it imperative to ensure that the applications of knowledge are used for the well-being of common people, especially in rural areas. Our consultations with a working group of experts involved with grassroots organizations helped identify some workable ideas and existing projects that have potential for scaling up. One of the pilot projects selected for implementation after discussions focused on the urgent requirement for ergonomic tools, especially among NREGA workers. This project recognises the enormous skills involved in manual work and aims to give workers tools that will help them carry out their task in a more specific and less physically taxing manner. The findings from this project form the basis for our policy suggestions. In this letter, key issues discussed pertain to designing ergonomic tools as a means of improving dignity of labour, encouraging energy efficiency, reducing workloads for women, reducing drudgery, increasing skillful engagement and improving productivity.

MAEER MIT Institute of Design (MITID), Pune in collaboration with Mazdoor Kisan Shakti Sangathan (MKSS), Rajasthan were identified by NKC as ‘host institutions’ to conceptualize fresh perspectives in tool design. Based on consultations and feedback received, we suggest the following steps to enable a qualitative improvement in general working conditions in occupations involving manual labour:

1. Improve Dignity of Labour: Creating a people-based development process is essential to improve working conditions and ensure dignity of labour. Large-scale government schemes which generate employment opportunities for those involved in manual labour should incorporate necessary processes and incentives for providing appropriate work environment, facilities and ergonomic tools to workers. Dignity of labour will be enhanced if basic facilities for water, shade, first-aid and child-care are also provided at the work site. Also pertinent here is the need to define appropriate work hours, productivity norms and mechanisms for grievance redressal to address issues of harassment and exploitation.

2. Modernize Tools and Technology: Redesigning low-cost tools for greater efficiency and modernizing tool kits needs to take into account India-specific factors such as the geographical and cultural diversity of the country. These factors include land, terrain, clothing, social conditions, traditional practices in tool-use and significantly, specific problems faced by women workers. There is also an urgent need to recognize that the tools currently used are of a very basic nature and involve low appropriate technology, minimum production complexity and local production. Also, these tools are often multi-purpose in nature and therefore unable to deliver efficiency in specialized tasks. For example, it is recognized that digging trenches for irrigation and digging for road

development have become very specialized tasks, requiring special energy efficient tools. While traditionally single tools have served the purpose of multiple tasks, there is increasing realization now on the need to design a variety of specialized tools. The following suggestions will help address such issues:

- Explore co-creation and a participatory design approach and process
- Involve the beneficiaries during testing and validation
- Engage social mobilization mechanisms extensively
- Carry out strategic grouping of tools based on functionality and tasks
- Articulate strategies and norms for maintenance and up-keep of tools
- Identify and analyze areas of mechanised and semi-mechanised tools/equipments, keeping in mind efficiency and employment opportunities
- Identify and partner with manufacturing clusters and manufacturers, including small and medium enterprises
- Alter the weight of tools keeping needs of women workers in mind. Weight reduction of tools makes the task easier and less intense
- To optimize the weight of the tool, bring about changes in the profile as well as the angle of the blade used, specific to the type of operation (e.g. ‘angular digging edge’ to dig better, ‘multiple digging edge’, ‘dimensioned digging edge’ etc)
- By optimizing on materials (eg. use of medium carbon steel) weight can be reduced while keeping the digging quality unchanged
- Use mechanical traction devices to enable load carrying from one point to the other (both vertically and horizontally) to overcome drudgery and ensure dignity of labour
- Provide necessary tools in the form of a ‘tool kit’ to the beneficiaries as another means of upgrading skills. The tool kits must be available at work sites and carrying them from home to the work place should be discouraged. Such modern tool kits must be evolved for not just field labour but other works such as plumbing, masonry, carpentry and electrification
- Aid heavy labour intensive tasks by semi-mechanised or mechanical traction devices to overcome drudgery and increase efficiency. This would also ensure that labour displacing machines do not take away the livelihood of workers.

3. Funding Mechanisms for Development of Tool Kits and Provisions for Loans: To ensure financial and operational sustainability as well as to achieve scale, it is necessary

to create appropriate funding mechanisms that catalyze the task of creating relevant R&D. This will also encourage various industrial, academic and research institutions and engage young minds in a critical, if often overlooked part of the development process. From the point of view of the beneficiaries, the incorporation of redesigned tools and related R&D within the structure of an employment scheme (such as NREGA), would facilitate easy access and also encourage R&D providers. Within a programme like the NREGA, there is a need for appropriate designs of tools for women, as well as for those who are physically weak and caught in a vicious cycle of low nutrition and reduced physical efficiency. The proposed Skill Development Mission could also create mechanisms to encourage the redesigning of such tools. Further, in this respect, it is necessary to incentivize private sector producers and importers of low-cost cutting-edge, human dignity-enhancing tools and implements. Incentives such as tax and duty policies favourable to local production as well as low-cost loans for buying such tools should also be considered.

4. Training and Upskilling Manpower: In order to harness the true potential of India's demographic dividend, we have highlighted the urgent need to produce skilled manpower and upgrade human resources. In this respect, as a means of encouraging the use of ergonomic tools and skill development, schemes for lifelong skill upgradation through training programmes must also be available for workers engaged in manual labour. Further, such training must be available locally to enhance access, taking into account context-based technical and planning specifics.

5. Portals and Guilds for Workers: Creating portals and guilds for workers will enable easy access of information on the availability of jobs and also facilitate transactions such as purchase of relevant material and ergonomic tools. In this respect, a key objective of the proposed Skill Development Mission is to develop employment exchanges as outreach points for storing and providing information on employment and skill development as well as enabling them to function as career counselling centres. At the local level, institutions such as the Panchayats should be involved to manage such portals or kiosks.

We believe that implementation of these suggestions will better the working conditions of people engaged in manual and other tasks in the country. This will also help in heralding a change in mind sets, which is essential to improve human capital and dignity.

With warm personal regards,

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Chairman
National Knowledge Commission

Copy to:

1. Dr. Montek Singh Ahluwalia, Deputy Chairman, Planning Commission
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4. Sh. Oscar Fernandes, Minister for Labour and Employment