‘The Three Rs’ – The way forward for Australia and Korea

ATSE/NAEK Australia Korea Workshop

Development of New Methods to Reuse, Recycle and Recover Valuable Resources

Background

Australia and Korea are major trading partners with substantial commercial, scientific and technological interchanges. Australia and Korea share a common goal of economic growth while minimising environmental impact. Both economies are working to tackle global challenges, which can be addressed collaboratively through sharing ideas and strategies.

The fourth Australia Korea invitation-only workshop, held in Melbourne, August 2013, addressed the important topic of Development of New Methods to Reuse, Recycle and Recover Valuable Resources. This included discussions on the Research & Development being undertaken in Australia and Korea, especially in the minerals, metals, polymers and packaging industries. and consisted of senior representatives from industry, academia and government from Australia and Korea. This meeting provided important networking opportunities and a technical visit to CSIRO Process Science Engineering.

Over the past four years Australia and Korea have undertaken three joint Workshops within the topic of “Green Growth”. These workshops and associated technical visits were administered by the Australian Academy of Technological Science and Engineering (ATSE) and the National Academy of Engineering of Korea (NAEK).

The fourth workshop was held to promote synergies with the participants of Australia Korea Business Council (AKBC)/Korea Australia Business Council (KABC) 34th joint meeting. Further details on the workshop: www.atse.org.au.

Recommendations

To progress linkages in the resource recycling, reusing and recovery areas, it is suggested that:

• Recycling, reusing and recovery technologies need to receive greater attention in both Australia and Korea. As the opportunity arises, both ATSE and NAEK undertake reviews of the management of their country’s major wastes and exchange results. This would identify where knowledge can be shared and collaborative projects initiated.

• Promote research training and education between Australia and Korea. This would allow researchers to be exposed to different research cultures.

• Australian and Korean Government to meet regularly to discuss future Australia-Korea opportunities at a higher level.

• Further investigate opportunities for collaboration. Explore the possibility of using the international component of the Australian Cooperative Research Centres (CRCs) and other programmes to link more closely with Korea.

Findings

1. Korea has an emphasis on metal recovery for conservation, costs and security reasons. In Australia, there is less interest due to small manufacturing base and smaller concern on supply security. Yet there are growing consumer concerns about the disposal of end-of-life products containing valuable materials in landfills and an increasing interest in recycling consumer electronics.

2. Australia has an emphasis on recycling (particularly packaging) to reduce carbon footprint due to high per capita emissions. Korea sees this as a priority also but has a less carbon intensive economy, has a different industry base as well as having already made considerable progress due to the focus on Green Growth for the past decade.

3. Both countries understand this is a multidisciplinary topic which needs Government and public support for the development of methods to recover, recycle and reuse. It is important to get the correct balance between economics, technology, and public understanding.

4. Collaborative opportunities exist on a group to group level between Australia and Korea. It is also necessary to develop the linkages further, examine the drivers for the processes and develop technological solutions. Future discussions should include:
  • Exploring the sustainability of resources, including the key commodities, factors and inputs which affect this.
  • Consideration to both ends of the waste line – how to better capture the embedded energy and resource value at the end-of-life aspect as well as how to minimise waste through better product design at the onset.
  • Ways to ensure that the industries use more sustainable processes to manufacture materials that are in the correct form to reduce or avoid waste generation.
  • Exploring the key wastes in each country, noting where the similarities are and identifying where knowledge can be shared and procedures initiated.