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Chairman of the Board of LANXESS AG



**WD: Do you think water crisis can be averted by practices. If yes, then what practices do you suggest?**

**Dr. AH** Yes, improved practices are essential, but without rethinking our overall approach to water, for instance by redesigning relevant governance and regulatory systems and rebuilding public trust in key institutions, our chances of successfully managing the looming water crisis and other global risks will be considerably diminished.

To achieve success, however, this vital reassessment of leadership capabilities must ultimately result in transformative advances in such essential practices as the recycling and reuse of water, preventing water pollution, purifying contaminated water and optimizing the allocation of existing water resources.

**WD: What kind of technologies can help worsening water situation in industrial/urban and rural sector and how?**

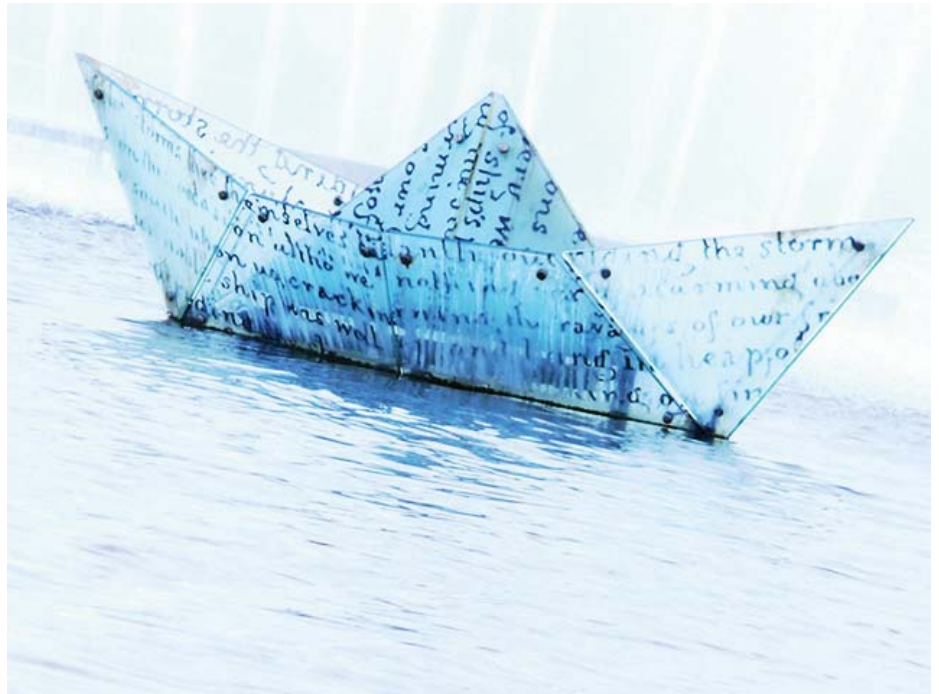
**Dr. AH** A range of filtration, purification, storage and transportation technologies are now changing the way we use water. Worldwide, more than 13,000 desalination plants now produce more than 45 billion liters of freshwater a day through distillation and membrane processes.

Advanced ion exchange resins and arsenic adsorbers are being used to purify existing contaminated water sources, playing a key part in water softening, demineralization and the decontamination of drinking and process water.

And new, large-scale, long-distance water transport projects are demonstrating that existing techniques and technology can make it possible to move water to where it is needed most, with minimal waste.

**WD: What kind of laws/ amendment would you like the implementing authorities to implement or change?**

**Dr. AH** India now has a modern legislation for proper environmental protection. The most significant chal-



lenge that we face today is to ensure that these laws are implemented effectively.

**WD: There is a lack of interest in water as a career option among the Indian youth. What suggestions would you like to share to make water an attractive career option?**

**Dr. AH** To some extent, this is a question of education and public awareness. As students in chemistry and engineering learn more about the growing problems in the field of water management, more of them are likely to be drawn to it as a profession.

There is certainly no shortage of interesting technical challenges connected with water. And slowly but surely, greater attention and resources are being dedicated to meeting these challenges.

Technology plays a central role in all water treatment processes. A growing number of dedicated and highly trained scientists and engineers will continue to take the lead in developing cost-effective and scalable technological solutions to meet the world's present and future water needs.

**WD: Do you see a possibility of having drinking water straight from tap in urban India? If yes, what process/structure and time frame do you think can be made possible?**

**Dr. AH** There is no doubt that India will offer clean drinking water available from the tap in the foreseeable future. The question of when it is likely to happen depends on investment and organization.

Obviously the technology is available now to make potable water universally accessible, but the funding and institutional structures are not yet consistently in place. Progress is being made, and advances in technology are going to help development gain momentum.

Today's chemical industry has a significant part to play in these changes. A broad range of specialty chemicals and products are already being deployed in India and elsewhere and are making billions of additional liters of water available to nourish the people, crops and economies of the world.

We are still far from overcoming every obstacle that lies ahead. But we will continue to develop the advanced technologies we need to use water

# WATER 2010

more efficiently and make it available more universally than ever before.

**WD: Water technologies are expensive to implement; what suggestions do you have, to make it affordable and practical?**

**Dr. AH** Ongoing refinements of current technologies will continue to make them more affordable and practical for deployment in developing countries. But on their own, that is not enough.

The world additionally needs to support research and development initiatives that will generate new, breakthrough technologies that will meet the water needs of a rapidly industrializing and urbanizing world.

To achieve this, it is essential that the private sector work in collaboration with governments, academia and multilateral institutions. Together, we all need to invest in a comprehensive approach that combines affordable technology with sound and sustainable water management practices and regimes.

**WD: What role should financial institutions play to accelerate water infrastructure?**

**Dr. AH** Significant investment, including public-private partnerships, for example, will be needed both for research and for infrastructure, and it is reasonable to expect that major financial institutions will play a large part in the decision-making process that will channel resources towards the most promising projects.

**WD: Is privatization of water an answer to urban water supply woes? Express your views, give suggestions and examples.**

**Dr. AH** That is a policy question that falls outside the range of a chemical company's expertise, but there may be circumstances in which private infrastructure could complement public facilities and investments, or in which sound solutions are created through public-private partnerships.

**WD: How do you see increased water recycle practices in urban and industrial perspective? What suggestions do you have to make it more**

**adoptable?**

**Dr. AH** After comprehensive cleanup and filtration steps are taken, membrane technologies can potentially be relied on to make water fully reusable. Before this is likely to happen, the real value of water will have to be recognized, and significant investments will have to be made.

On a more limited scale, water recycling has recently picked up significantly in both India's urban and industrial sectors. The technical requirements for these two areas are quite different. Different treatment processes result in significantly different quality of the treated water, and the specific end uses must always be kept in mind.

**WD: Regarding the "2010 Wish for Water Year", what agendas have you set for the immediate action of your organization and its affiliates?**

**Dr. AH:** LANXESS is making water one of its central topics in the year 2010 and is working to improve the use of resources through a timely combination of products and social projects. Water has been playing an increasingly important role in LANXESS' operational activities.

First of all, we are building two new production facilities – one for membrane filtration technologies in Bitterfeld, Germany, and another for ion ex-



# WATER 2010



change resins in Jhagadia, India. These represent LANXESS' biggest investment program in the water market to date. In total, the Group is investing some 80 million Euros in these new sites.

The plant in Jhagadia is scheduled to come onstream later this year and will be the most advanced of its kind in Asia. Among other things, it will supply products for the production of ultrapure water for the semiconductor and pharmaceutical industries, for industrial water treatment, for food production and for power generation.

In Tanzania, LANXESS is cooperating with the African Medical and Research Foundation to provide roughly 10,000 students with improved water supplies and new sanitary facilities as well as education in health and personal hygiene.

LANXESS is also supporting ecological education in Germany. From August to October 2009, the group sponsored three to five-day workshops on the topic of water at four secondary schools in Krefeld, Bitterfeld, Cologne and Leverkusen.

**WD: What is the future of POU (Point Of Use) water purifiers/conditioners? What new technologies your organization is working on and how quality/cost effective will they be? Do you see the POU culture moving to rural areas and what is your**

#### **forecast about it?**

**Dr. AH:** For several decades, we have been collaborating with a major European POU water filtration cartridge producer. New and improved products are regularly being developed for this application. In the future we expect to see wider use of the technology in all sectors.

#### **WD: What are your inputs and comprehensive views on water development, planning water supply for the future in urban and rural India?**

**Dr. AH:** Ready water supplies are dwindling worldwide, and are thus becoming an increasingly valuable resource. In India, these problems are compounded by rapid population growth and overstrained infrastructure, particularly in the densest urban areas.

Fortunately, India's economic and technological development is also progressing rapidly. There is currently a window of opportunity to ensure that all Indians will be provided with good drinking water as well as a reliable water supply for industrial and agricultural uses in the near future.

To take advantage of that window, the country will have to institute a strong governmental planning effort and leverage new technologies so that change can be implemented in the most efficient and effective way possible. This includes undertaking a rational apportionment of water

resources across all priority uses and developing the use of recycling and POU technologies.

#### **WD: What are the environment friendly water technologies that India will get to see in future? And what are the possible ecological effects it will produce?**

**Dr. AH:** LANXESS itself produces a range of special ion exchange resins that can be selectively used to remove, for example, heavy metal ions and organic pollutants from industrial wastewater and effluent. Our Lewatit resins and adsorbers are designed to attract specific contaminants, which can thus be completely and efficiently removed from water. A further field of application for ion exchange resins is in hydrometallurgy, which uses them to treat solutions of metals like gold, copper, nickel and cobalt. Special grades have been developed to isolate these metals and reduce their impact on water resources.

In any case, the avoidance of water contamination should be a major focus for all industries. The technologies to achieve this are available and should be implemented. As an example, our new ion exchange production site in Jhagadia will include a modern wastewater treatment plant. The wastewater will be thoroughly pre-cleaned before it is released into the effluent pipe at the Jhagadia Chemical Park. This process takes place in a separate, modern LANXESS treatment plant and will ensure that all used water is well within discharge limits when it leaves the company's premises.

Of course these are just specific examples of the many new technologies that are now becoming widespread in water treatment. The potential ecological impacts are enormous, both in terms of providing healthier water resources to human users and in terms of rebuilding natural ecosystems that have been threatened by pollutants.