

## **Senior Fellowship for Dr. Anita Etale "Tuning the Separation Properties of Thin-Film Nanocomposite Membranes by Polymeric Functionalisation of Graphene Oxide Nanosheets"**

Initiative: Wissen für morgen – Kooperative Forschungsvorhaben im subsaharischen Afrika (beendet)

Ausschreibung: Postdoctoral Fellowships on Livelihood Management, Reforms and Processes of Structural Change

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Laufzeit:

Limited access to safe water exacerbates already dire conditions of low-income communities leading to poor health. Further, there now exists data linking insufficient access to water with social conflicts, human displacement and migration. Increasing access to clean water for such communities through water purification techniques that are both efficient and affordable is, therefore, indispensable for sustainable urbanization and the well-being of urban populations. Membranes and membrane-based filtration represent the state-of-the-art in water purification and are considered key to addressing challenges to water access, particularly for point-of-use water treatment devices. With the advent of nanotechnology, nanomaterials including graphene oxide (GO) are increasingly incorporated into membranes to produce thin film nanocomposite (TFN) membranes. Incorporation of GO in TFN membranes imbues the latter with chemical and antibacterial properties that are valuable for water treatment applications. However, to enhance membrane function, certain modifications to the GO sheets may be required. The proposed work therefore aims to increase TFN membrane performance and fouling resistance by incorporation of hydrophilic polymer brushes in GO sheets. Previous work has shown that experts emphasised the benefits of nanotechnology rather than its risks and were more concerned about human and environmental impacts of nanomaterials than they were about societal impacts e.g. whether end-users could afford solutions. The proposed project aims to investigate the effect of end-user salience among upstream and downstream nanotechnology experts on attitudes towards societal impacts of nanotechnology. The hypothesis that end-use salience is correlated and possibly mediates attitudes will be tested using a sample of experts drawn from African universities and research institutions.

### **Projektbeteiligte**

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