

**10<sup>TH</sup> INTERNATIONAL SHEA BUTTER  
CONVENTION 11<sup>TH</sup> – 13<sup>TH</sup> OF OCTOBER 2012**

**TOPIC:**  
**BIO PROCESSING TECHNOLOGIES**

**TITLE**  
**INNOVATIVE IDEAS: PREDICTING EFFECTS OF NANOTECHNOLOGY ON THE  
QUALITY, EFFICACY AND COST OF SHEA BUTTER FOR SKIN TREATMENT**

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# 1. INTRODUCTION TO THE SHEA BUTTER INDUSTRY

1. Low yield - cold pressure method
2. Unpleasant smell - Crude Shea butter
3. Weaken vitamin – refined and ultrafine Shea butter
4. Cost - Cold pressure processing method
5. Allergic reactions – chemicals used in Solvent Method
6. Odour – due to chemicals used in Solvent Method.

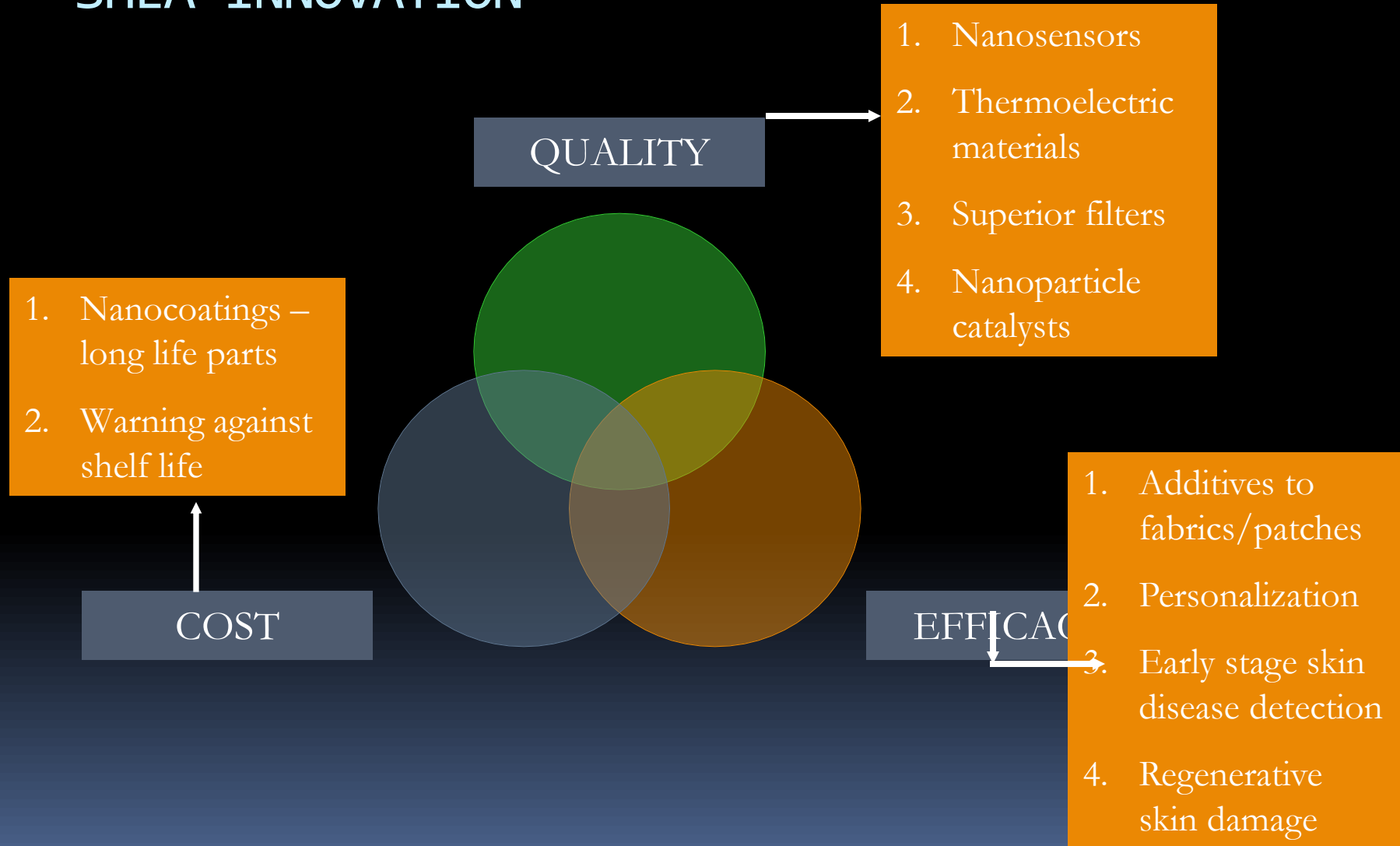
## PURPOSE:

To assess nanotechnology as an innovative tool and forecasts its impact in overcoming some of the challenges in the Shea industry, particularly on the **quality, efficacy and cost** of Shea butter for skin treatment.

# LITERATURE REVIEW

1.0 Uses of Shea Butter	2. Conventional Processes	3. Nanotechnology
<ul style="list-style-type: none"><li>• Anti Aging,</li><li>• Healing Aide,</li><li>• Prevention,</li><li>• Skin Protection.</li></ul>	<ul style="list-style-type: none"><li>▪ Crude Shea butter processing method</li><li>▪ Refined &amp; ultra refine - Solvent method</li></ul>	Nanostructured materials exhibit different characteristics compared to their micro and macro counterparts.

# FINDINGS - EFFECTS OF NANOTECHNOLOGY ON SHEA INNOVATION



# CONCLUSION

1. Nanotechnology can
  1. impact on the **quality, efficacy and cost** of Shea butter for skin treatment.
  2. overcome some of the challenges such as **yield, odour, allergic reactions, and cost** facing the Shea industry.
  3. overcome challenges of **methods processing crude Shea butter and Refined**
2. **Destructive technology** for production of Shea nut nanoparticles that may have characteristics different from the conventional Shea butter
3. **Policy issues** that need to be addressed **scientifically** during processing and use of Shea nut nanoparticles include
  1. **Route of exposure** (inhalation, oral, or dermal) k
  2. **Physical and chemical characterization** of Shea nanomaterials
  3. **Dose–response** relationship of Shea nanomaterials and toxicity

# RECOMMENDATIONS

1. Identify and characterize the **physical and chemical properties** of manufactured Shea nut nanoparticles
2. Identify alternative **testing methods and approaches to predict toxicity in humans** which includes **identification of biomarkers**
3. Assess the **toxicity** of Shea nanomaterials in **animals**.
4. Investigate **safe exposure levels** that would protect **vulnerable subpopulations**
5. **Occupational safety and health** issues associated with Shea butter nanoparticles
6. **Workplace exposure** monitoring and protocols
7. Develop **personal protection for activities** involving Shea nanoparticle production and nanoscale Shea butter processing in the workplace

# Q/A