

Short Communication

Defining creativity in Kangri: Innovation of change in the Kashmir Valley

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This article explores an innovative solution to address a century-old design limitation in the traditional Kashmiri Kangri, a cherished winter essential in the region. The introduction of the "Spill-proof Kangri" design, based on the principles of gyroscopic effect and gimbal lock, has successfully mitigated the issue of spillage, making it safer and more user-friendly. The National Innovation Foundation - India (NIF) has filed a patent application to protect this intellectual property and has actively supported its diffusion. Research into technology standardization and feedback from trials in the Kashmir valley have been encouraging, emphasizing the enhanced safety standards and potential for cultural preservation. The Spill-proof Kangri design represents a significant case of incremental innovation, highlighting the need for holistic development and adaptability in the value chain. It also underscores the importance of bridging the gap between innovations from the informal sector and formal scientific research. Collaboration is encouraged to disseminate this innovation and benefit end-users while preserving cultural traditions.

Keywords: Gyroscopic effect, Grassroots innovation, Incremental innovation, Spill-proof Kangri

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The Kashmir valley, often hailed as "a paradise on earth," experiences harsh winters due to its geographical conditions and proximity to the Himalayas. An integral part of Kashmiri culture, especially during the chilly winter months, is the "Kangri" – an earthen fire pot filled with embers encased in an elegantly woven wicker basket¹. Despite the advent of modern appliances, Kangri remains a winter favorite for the average Kashmiri,

providing solace and warmth². This article explores a unique design modification for the traditional Kangri, making it spill-proof and safer to use, addressing a century-old design limitation. Additionally, it sheds light on the need for formal science and research to pay more attention to innovations from the informal sector.

Methods

The spillage issue in traditional Kangris is primarily due to the rigidity of the pot's movement (Fig. 1 a, b). To overcome this, an innovative design modification was introduced, known as the "Spill-proof Kangri" (Fig 1 c, d). This design is based on the principles of the gyroscopic effect and gimbal lock (Fig 2 a, b). The key to the design is introducing an inner clay pot inside the main base pot using clamps and flat rings made from a thin mild tin sheet (Fig 2c). This inner pot is mounted in a way that allows it to move freely in any direction, maintaining its orientation regardless of the movement of the whole Kangri.

The inner pot ensures that, even when the Kangri is tilted to its maximum level or inverted, the inner pot and the embers inside it remain upright, preventing spillage and potential hazards. This simple yet effective design modification has improved the Kangri's usability and provided users with a safer experience.

Results and Discussion

The introduction of the Spill-proof Kangri design has yielded promising outcomes. The National Innovation Foundation - India (NIF), an autonomous body of the Department of Science and Technology (DST), Government of India, has filed a patent application to protect the intellectual property rights of this modified Kangri design. NIF has been actively supporting this technology, fostering value addition, technology diffusion, and exchanges between potter communities in Gujarat and Kangri manufacturing communities in Kashmir.

Research is also underway to explore technology standardization, including the use of thin clay pots with different ceramic properties to reduce the Kangri's weight and minimize heat loss through its

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Fig. 1 (a & b) — Front and horizontal view of traditional kangri, c & d - Front and horizontal view of spill proof kangri

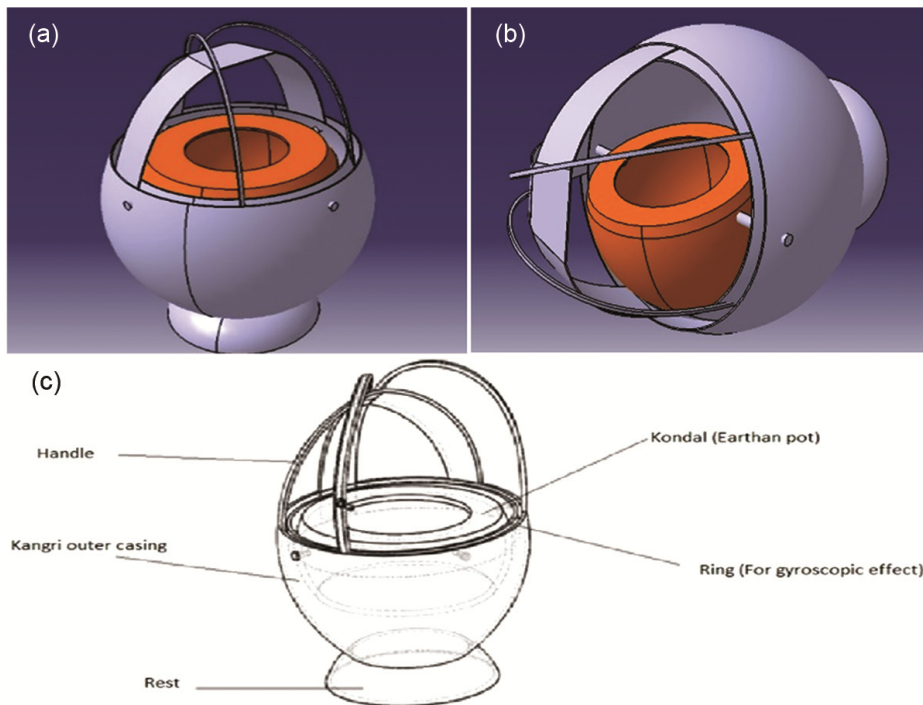


Fig. 2 (a & b) — Isometric view of spill-proof kangri. c – Line diagram of spill proof kangri

clay surface. The feedback from trials conducted in the valley has been extremely positive, emphasizing the enhanced safety standards provided by this design modification.

Conclusion

Embracing incremental innovation and bridging gaps

The Spill-proof Kangri design is a testament to the power of incremental innovation, particularly in rural areas. It highlights the need to integrate various aspects of material sciences, crafting techniques, ergonomic design, and manufacturability to achieve holistic development. The challenge now is to ensure the adaptability of this innovation by all stakeholders in the value chain, making the Kangri more sustainable while retaining its cultural value.

Moreover, this case underscores the importance of bridging the gap between innovations from the informal sector, like artisans, potters, and blacksmiths, and formal scientific research. Even small contributions from formal science can bring significant change and inclusiveness to grassroots innovation ecosystems. The National Innovation Foundation welcomes individuals, researchers, and institutions to join hands for the diffusion of this innovation with the ultimate goal of benefiting end-users and preserving cultural traditions.

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Conflict of Interest

The authors declare no conflict of interest.

Author Contributions

ASM – conceived the idea of the innovation, VP – manuscript preparation, SS – Data collection (Field work), HS – Assistance in manuscript preparation, NM – Finalization of Manuscript, MP – Principal Investigator - Kangri design and development, revision to scientific concept of the manuscript.

Data Availability

Data supporting the findings of this study are available upon reasonable request from the corresponding author.

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