

Intensifying the 'lazy man's crop': Lessons from the history of rice research & development

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Rice: Sometimes known as the 'lazy man's crop'

Rice (*Oryza sativa* / *O. glaberrima*) is a robust crop with numerous cultivars, reflecting huge variation in growing conditions. This makes rice a flexible crop within farming systems and livelihood strategies.

Some farmers opt to replace intensive rice monoculture with combinations of extensive rice (e.g. for subsistence) + cash crops (e.g. horticulture) + off-farm activities (e.g. petty trading, employment).

Implications for rice research and development

Intensive rice cultivation technologies are sometimes stuck 'on the shelf'. Farmers often get blamed for not embracing new methods.

Rice improvement programmes typically target productivity increases, emphasising genotype×environment (G×E) interactions and external inputs.

This neglects farmers' priorities and constraints. Solutions are needed for rice cultivation under flexible, low-input management.

Alternative cultivation strategies are now being proposed, e.g. the System of Rice Intensification (SRI), aerobic rice, 'growing rice like wheat'. What do they offer? Are they really new?

Lessons from history

The Green Revolution (GR) was the product of particular historical circumstances. In the post-GR era, we observe a revival of interest in field cultivation methods and basic agronomy (fig. 1). This focus resembles the agronomic R&D of the pre-GR period.

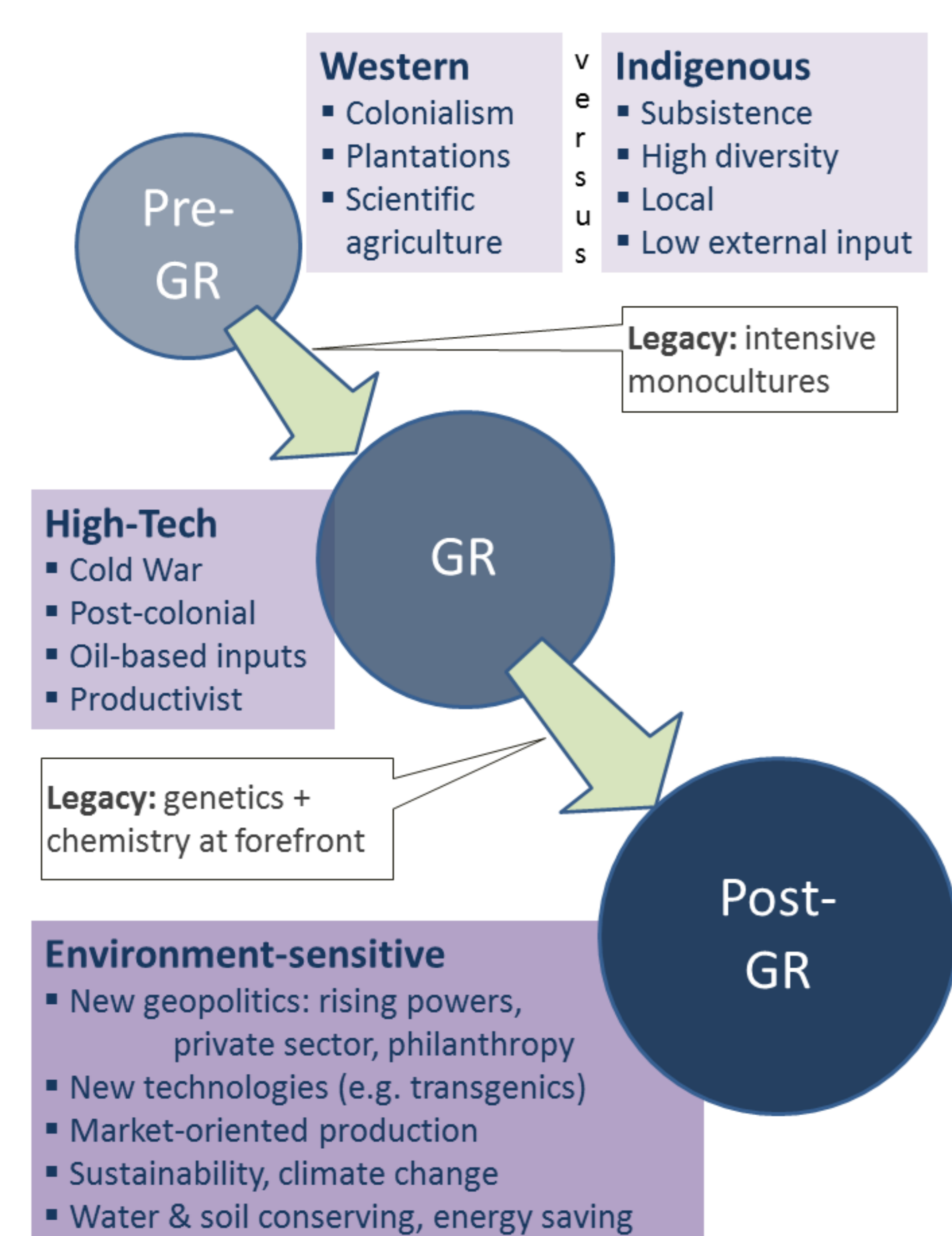


Figure 1. Before, during and after the Green Revolution Changing modes of agricultural science and practice.

Pre- and post-GR similarities:

- Water scarcity
- Market-oriented diversification
- Off-farm income opportunities in trade-oriented economy
- Interest in multi- and mixed cropping
- Multiple technical options for G×E improvement

Factors carried over from GR period:

- Advanced technical options available
- Strong knowledge base for G factor
- Limited funding & research capacity for alternative technologies

G×E interactions are managed by farmers

- SRI is reviving crop cultivation techniques that were widely studied and practised in colonial times. In those days, farmers and researchers sought to produce a good rice crop with local resources in a particular place.
- In colonial Indonesia, farmers produced cash crops like rubber and tobacco rather than intensifying upland rice, despite the existence of technical options to do so.

These examples illustrate the importance of farmers' skilful management (M) of:

- local agro-ecological conditions (micro M).
- wider social and economic opportunities (macro M)

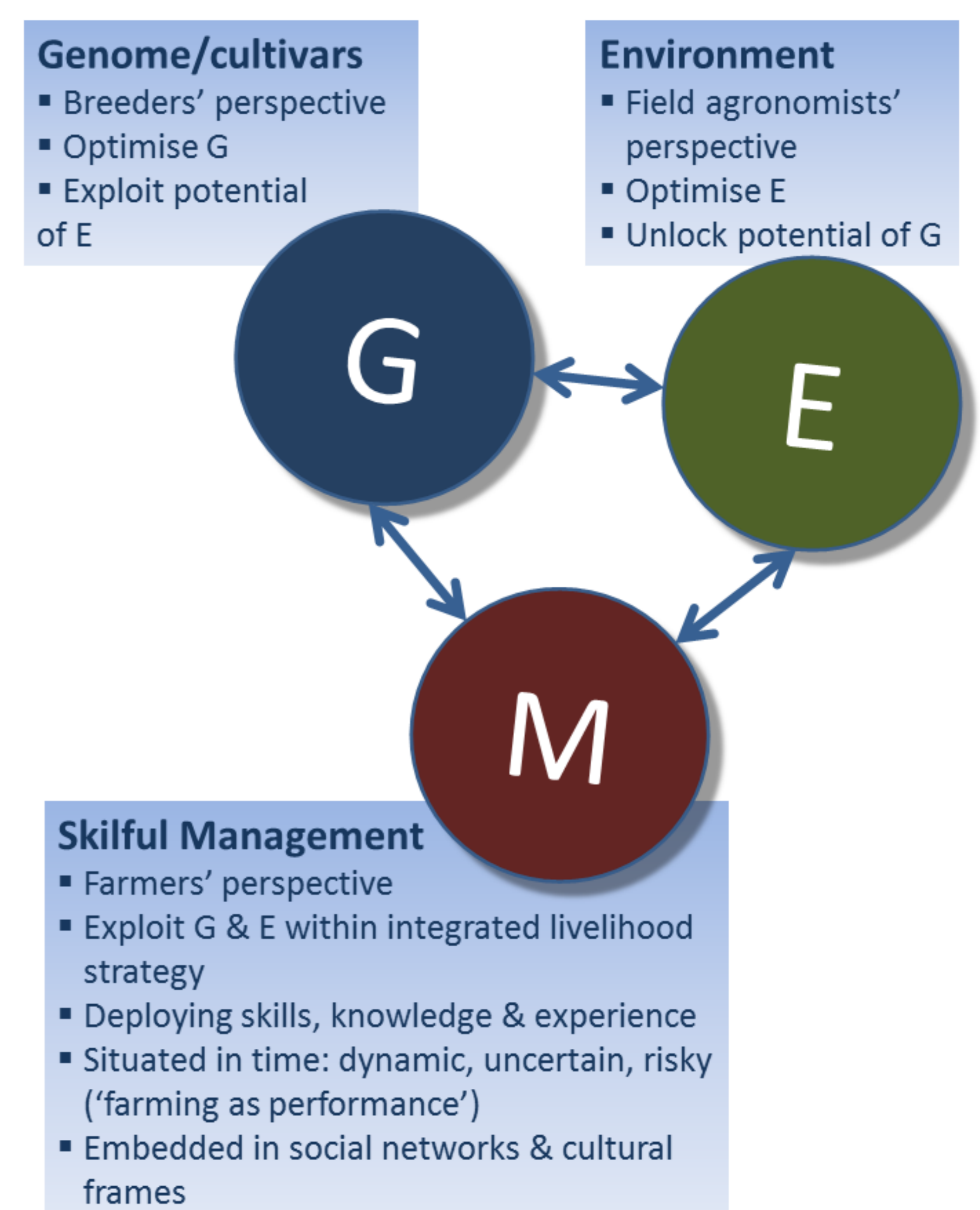


Figure 2. The G×E×M perspective. Skilful management is often neglected as a vital element in agricultural improvement.

The G×E×M perspective implies taking into account the livelihood strategy and socio-economic context, not just crop management methods (fig 2).

Conclusions

- The 'lazy man's crop' label is a clue pointing to rice's flexibility for finding smart solutions to suit diverse agro-ecological conditions, livelihood strategies and socio-economic contexts.
- Our analysis explains why existing methods are still practised / revived alongside new technologies.
- We recommend viewing **rice within a livelihood system** rather than **rice as a production system**.

Acknowledgements

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- P1.43 Adusumilli et al. "New paradigms in sustainable intensification for food security: Differentiated agronomies in the System of Rice Intensification in India"
- P1.45 Sen & Shambu Prasad "Adapting agronomic management practices for enhancing rice yields: The spread of SRI practices in mountain farms of Uttarakhand, India"
- P4.30 Berkhout "When do farmers innovate? How environmental diversity, social institutions and mode of extension shape processes of technology diffusion"

