



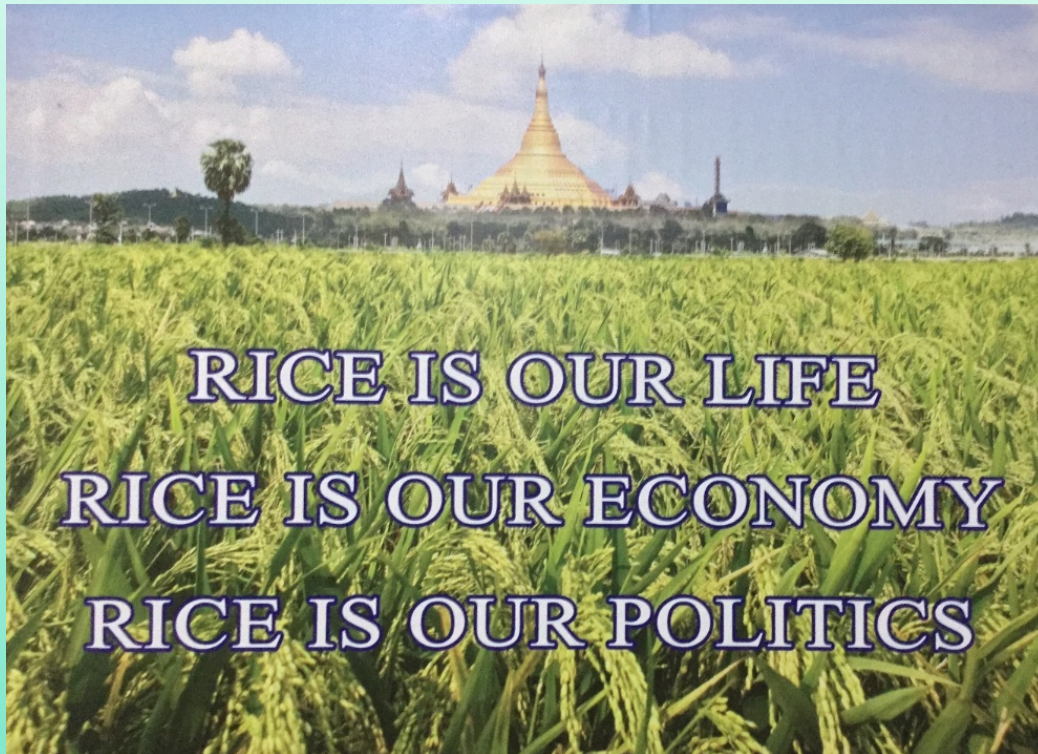
Harvesting the Future: Reform and Renewal of Myanmar's Research and Extension System

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on behalf of DAR Research Task Force

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Essential to New Agricultural Policy and Agricultural Development Strategy Pillars



P 1

P 2

P 3



MOALI Vision Statement: *“An inclusive, competitive, food and nutrition secure and sustainable agricultural system contributing to the socioeconomic wellbeing of farmers and rural people and further development of the national economy”*

Why is improved effectiveness of the research system an **URGENT** priority?

1. Small increases in the rate of agricultural growth have a large impact on the economy

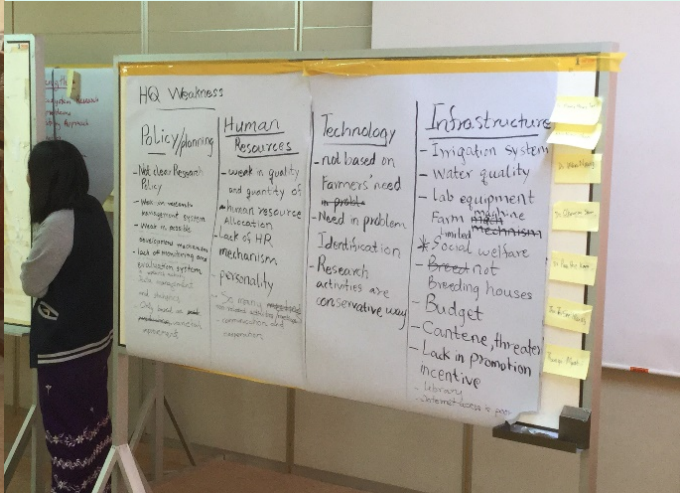
Increase in 1% in the rate of agricultural growth results in direct increase of \$200 million and over \$300 million when multiplier effects are included

2. Agricultural growth rate is low relative to its potential: 3.2% per year compared to over 7% for the overall economy

Why is improved effectiveness of the research system an **URGENT** priority?

3. Profitability of paddy and other food crops is declining due to low yields and increasing wage rates
Increases in yields and value of production are essential to improve rural household incomes
4. Myanmar has extremely low levels of public investment in agricultural research and extension
Less than one tenth the level of investment in agricultural research compared to average for Asia
5. Increased investment can only be justified by increased effectiveness and impact

How to increase effectiveness ? DAR Task Force Established January 20, 2017



Initial Research Task Force Findings: Overview and 4 Recommendations

Overview of Findings

1. Research and extension can only succeed together:
 - **ONE** national agricultural innovation **SYSTEM**
 - A shared objective of ***adoption*** of improved technologies by farmers
2. Effectiveness of research component could be increased by:
 - Agricultural System approach to R&D: decentralized, multidisciplinary, and participatory at all stages of the innovation cycle
 - Strong human resource capacity development and management for lifelong career productivity
 - Flexibility to “fast track” promising varieties and other technologies
 - Increased availability and access to operational funding
 - Stronger collaboration with local and global research community

Recommendation 1: Agricultural Systems Approach to Technology Development

- **Refocus** on the application of science to solving farmers' problems:
 - Measure success by **adoption** of new technology and **impact on farmer wellbeing**
 - Integrate farmers and extension into every stage of research
- **Recognize** that farmers make technology adoption decisions based on their agricultural and livelihood system
 - Combination of crops, livestock, aquaculture, off-farm activities
 - Climate and variability, soil, irrigation access
 - Markets, infrastructure, finance
- **Multidisciplinary** approach to understanding farmers problems and design of technology solutions

Recommendation 2: Myanmar's Diversity Requires Decentralization to Agricultural System Level

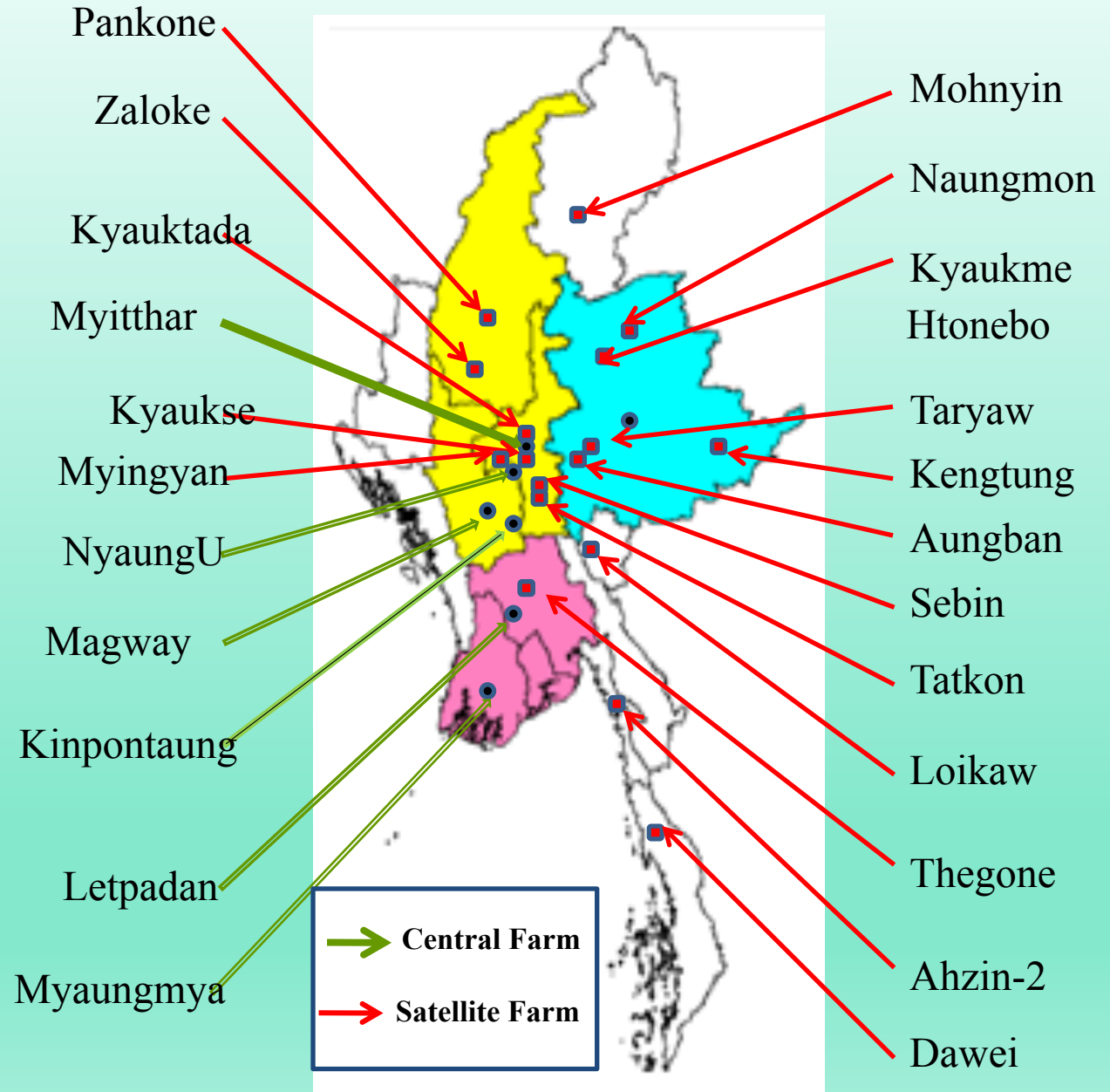
- **Identify** major agricultural systems – for EXAMPLE:
 - **Dry Zone AGSYS**
 - **Upper Delta AGSYS**
 - **Hilly AGSYS**
 - **Eastern Plateau AGSYS**
 - **Lower Delta AGSYS**
 - **Coastal AGSYS**
- **Group existing satellite farms according to agricultural system** they can most effectively serve
- **Identify one Regional Research Center (RRC)** for each agricultural system
- **Include** cropping system, livestock and aquaculture researchers as needed for each RRC

Current System

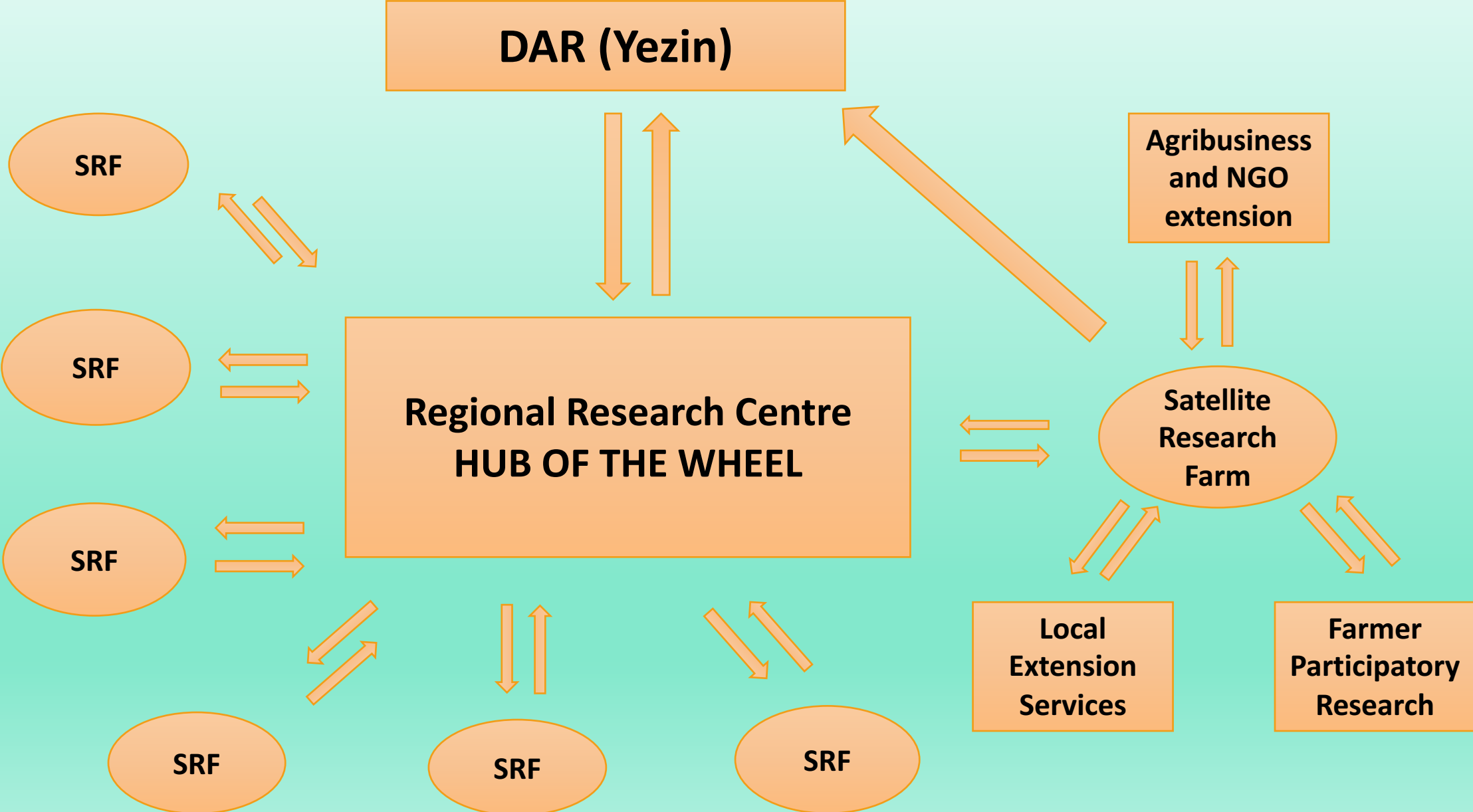
Each satellite farm has mandate for specific crops

Research activities are designed mainly at DAR HQ in Yezin and distributed to satellite farms for implementation according to crop mandates

Central Farms and Satellite Farms



Proposed System Example: Dry Zone Agricultural System



Regional Research Centers (RCC) Requirements

- Highly qualified and experienced technical staff for most important crop, livestock, aquaculture enterprises
- Socio-economic analysis capacity at RCC
- Dedicated technical support team at Yezin for each RCC
- Strong RCC linkages to international research
- Housing, laboratory, equipment, and transportation
- Active local stakeholder participation (e.g., agribusiness, regional govt)

Human Resource Constraints Limit Possibilities for Decentralization in the Near Term

	DAR HQ	Satellite Farms	Total
Ph.D	23	2	25
M.Agr.Sc	60	15	75
Post Grad. Dip.	19	3	22
B.Agr.Sc	128	88	216
Diploma	124	80	204
Total	354	188	542

Recommendation 3: Expand and Improve Human Resource Management

1. Science capacity development is a continuous and lifelong process **from undergraduate and internship level onwards**
 - Strong internal training capacity to complement external
 - Strengthen basic skills as well as early access to advanced equipment
2. Ensure that advanced degree training can be translated into science application (laboratory facilities, equipment, supplies)
3. Career-long learning opportunities through scientific exchange

Recommendation 3: Expand and Improve Human Resource Management

4. Research career that allows for promotion through scientific accomplishment rather than administration
5. Increased public recognition of accomplishment for individuals and teams
6. Modernize financial administration to support scientists rather than discourage them

Recommendation 4: Capacity to “fast track” technology development

- Expand capacity for accelerated variety development
 - Accelerated variety selection at Yezin using modern techniques
 - Accelerated participatory variety selection at RRCs
- Expand capacity for pest, disease, soil fertility and water management
- Expand on-farm testing with extension support and ICT feedback
 - Greatly increased number of on-farm trials
- DAR focus on early generation seed production
 - Breeders and foundation seed for OPVs; parent lines for hybrids
 - Allow private sector access to parent lines
 - Prioritize new varieties over existing varieties

Next Steps

1. Revive National Agricultural Sciences Academy and establish National Agricultural Innovation Council to guide institutional development
 - Retain expertise in the national knowledge system even after completion of government service
2. Engage extension system component of national innovation system in reform process
3. Develop human resource development plan in collaboration international research organizations

Next Steps

4. Engage potential donors in development of 5 year investment plan for national agricultural innovation system
5. Decentralization pilot program:
 - Validate major agricultural systems “map”
 - Establish one or two RRC teams to pilot the decentralized approach
 - Include extension, Yezin-based scientists and international research organizations in support of RRC teams
 - Allocate additional personnel, operational budget and transport