International Center for Tropical Agriculture
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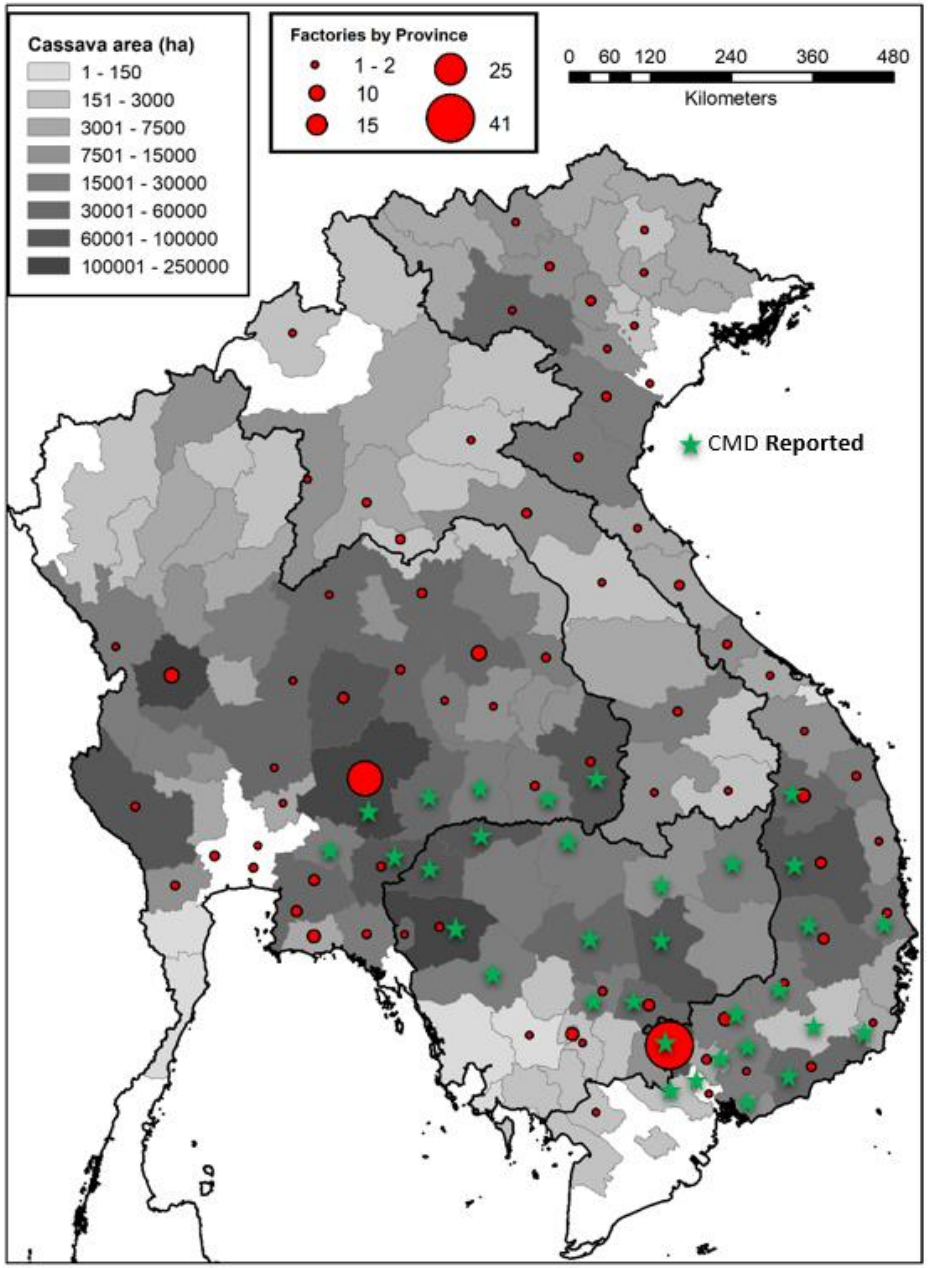
Actions in place, plans and priorities to manage cassava disease in mainland Southeast Asia

Vientiane Stakeholder meeting

Laothao Youbee - CIAT

CGIAR
CIAT is a CGIAR Research Center

Current official reported status of CMD in mainland SEAsia



Vietnam: **14 Provinces infected**
Current area 17,866 ha infected

Cambodia: **10 Provinces declared**
additional provinces with reported symptoms

Thailand: **7 Provinces** have had symptoms reported

Laos: **No symptoms reported** – planting material coming from Vietnam and Thailand

Myanmar: **No symptoms report** – planting material coming from outside

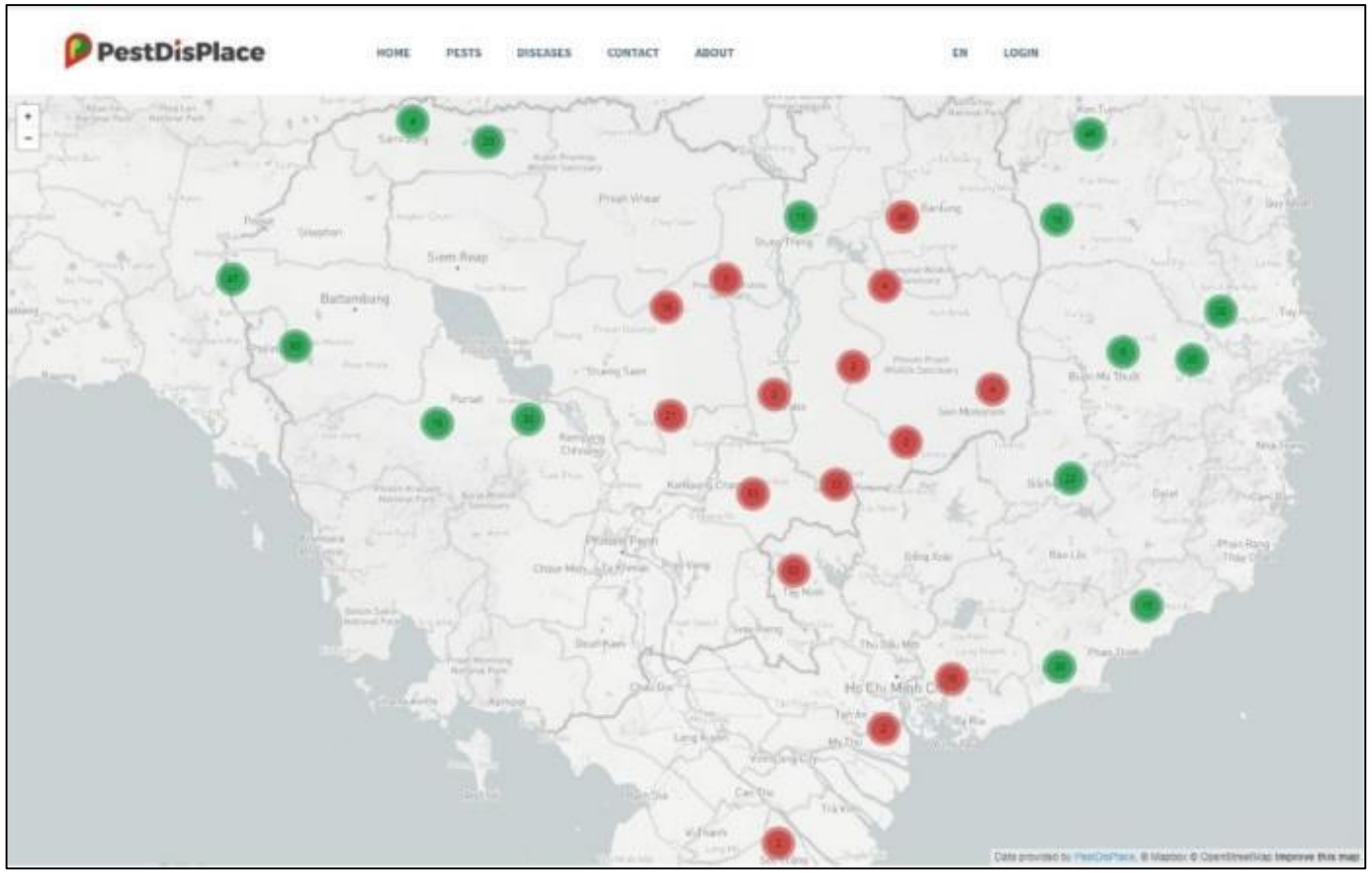
Short term

Evaluate which existing varieties are less susceptible

Speed of degeneration and yield loss

Develop clean ‘seed systems’ for production and distribution

Capacity building and platforms for surveillance and communication – where is the disease and where can clean stems can be sourced?



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Australian Aid

CAVAC
Innovation in Agriculture

KU50
Rayong 11
SC8
HuayBong60
KM98-1
Rayong 5

50m apart

Our vision, a sustainable food future

CIAT 50 1967-2017

Poor management of planting material

"The corner of prosperity"

Large variation in degree of susceptibility of existing varieties in the regional

Our vision, a sustainable food future

Cassava witches broom in variety evaluations in Lao PDR

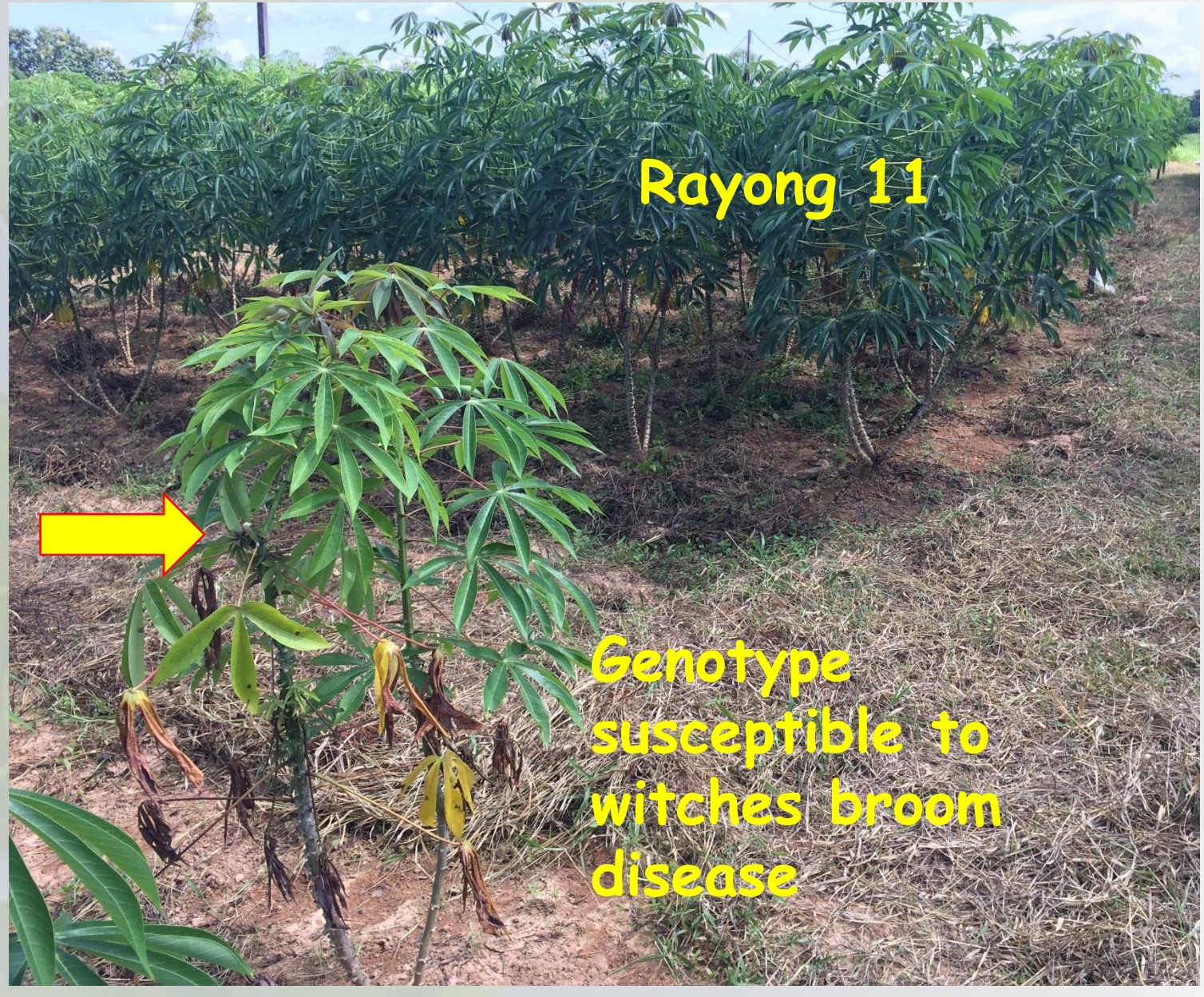
KU50

Rayong11

Incidence of CMD in elite cassava germplasm

Rayong 11 is susceptible to CMD, but is becoming clear that it has good tolerance to witches broom disease

Screening of core collection for resistance



MGTCL Molecular Genetics and Tissue Culture Laboratory

CIAT'S CASSAVA SEED SYSTEM APPROACH

1 **Implementation of relevant technologies for different scales**
· Industrial level
· Small farmer associations

2 **Simplified protocol to achieve low-cost design with adaptable equipment.**

3 **High throughput platform to integrate with multiple crops.**

In vitro methodologies

TRAINING AND

Scaling up: Hardening & macro propagation

CAPACITY BUILDING

To end-users

1 Conventional in vitro culture **2** Biorreactores **3** Synthetic seeds **4** Rural TC laboratory **5** Rural schools initiatives

1 Hardening phase of in vitro culture **2** Tunnels system & sprouting rooting **3** Mature and immature cuttings **4** Pellets

1 Farmers associations **2** Industrial company **3** NGO´s **4** NAR´s **5** School projects

Our vision, a sustainable food future

CIAT 50 1967-2017

Hardening phase & harvesting immature/mature tissues & macro propagation

In vitro plantlet

Substrates composition &
Mycorrhiza & Trichoderma

Field conditions
4-6 months

Mini cutting + sprouting + rooting

To root each miniset

Tunnels system: For scaling up and speed up process

Lateral table 1
0.7 x 9 m
36 tray/50 holes
3600 plantlets

Central bed
1x 8 m
1000 mini-cuttings

Lateral table 2
0.7 x 9 m
36 tray/50 holes
3600 plantlets

Benefits:
Allow to attend remote areas and offer planting materials at rural level
Easy construct of system & It could facilitated a entrepreneurships

Medium term

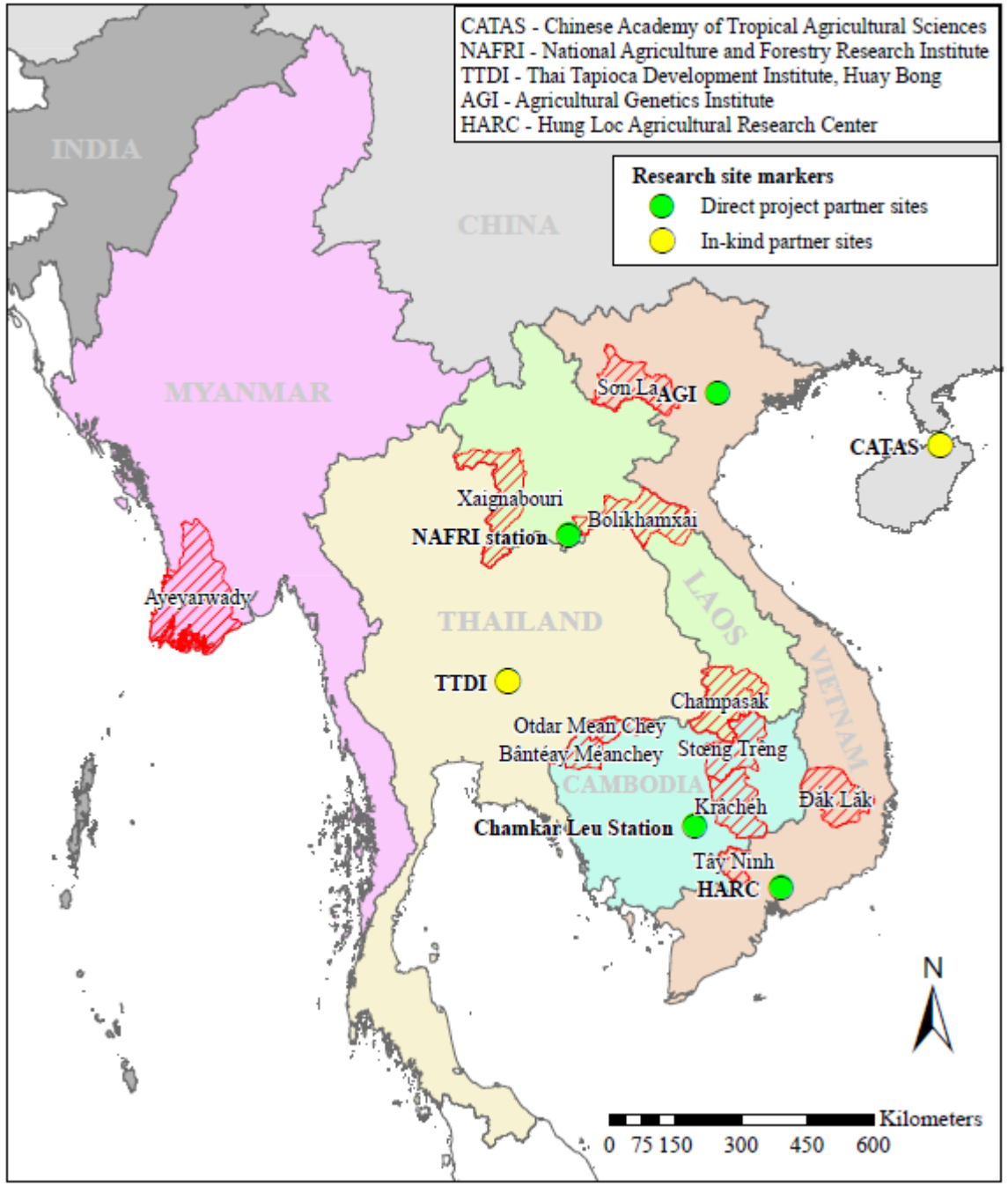
Evaluate varieties with resistance for performance in different agro-ecological regions

Safe introduction of varieties from IITA (Africa) and CTRI (India)

- I must emphasize the **SAFE** introduction of material from Africa and India
  - Africa has many strains other strains of CMD, brown streak disease
  - Industry must ensure that in the search for a ‘quick solution’ no one tries to introduce through informal mechanisms

มหาวิทยาลัยเกษตรศาสตร์
KASETSART UNIVERSITY

TTDI



How do these varieties compare to clean KU50 over time?

This work need to happen with public and private sector in these different agro-ecological zones

Multi-location evaluation and scaling with national & industry partners

Planning with factory staff

Trials on factory land

Agents take best varieties

Demonstration with traders

Demonstration with farmer leaders

Longer term

Breeding for resistance for SLCMD and CWBD

Evaluation of new clones with partners: over 200 new clones in TayNinh

Screening has began in southern Vietnam

203 genotypes being screened

- 150 genotypes are landrace that collected from 26 provinces in Vietnam representative for all different ecological region
- 8 varieties of HLRC
- 39 CIAT genotypes
- 6 varieties popular in the North of Vietnam

7 symptomless at 12 weeks

Additional diversity and sources of resistance coming

CIAT has transferred an additional 151 clones carrying TME3 to Vietnam for screening, breeding and distribution into the region

Regional Workshop – Collaboration and Coordination


CASSAVA MOSAIC DISEASE
REGIONAL EMERGENCY CONTROL PLAN
IN MAINLAND SOUTHEAST ASIA

Australian Aid

CIAT

CGIAR

Objectives of the proposal

To kick start the CMD plan of control, agreed by representatives of the four countries (Cambodia, Lao PDR, Thailand and Vietnam) and by members of international organizations.

Duration
2 years
2019–2020

Evaluation cost

Countries participants
Cambodia, Lao PDR, Thailand and Vietnam

Composition of the CMD Emergency Plan Steering Committee

Becerra, Luis Augusto (CIAT-Cali) l.a.becerra@cgiar.org
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ummary

016, the first publication of the cassava mosaic disease (CMD) ublished, reporting the unequivocal identification of the Sri cassava mosaic virus as responsible for CMD symptoms in heast of Cambodia as early as 2015, although it is not known ase appeared first in this location and country. Since that al surveys have been conducted in Cambodia, Vietnam and as of mid 2018, the disease was present in 6 provinces in d 10 in Vietnam, and now 3 provinces in Thailand. There yet reported in Laos. In 3 years, the disease reports a single plantation in Cambodia to an estimated 10% ultivated in the whole region. Therefore, the impact panding quickly. The disease is transmitted in ural whitefly vector (presumably Bemisia tobaci, the cassava cuttings. There is no transmission the seeds. There is a very active cassava stake several provinces of Cambodia and between Cambodia m or Thailand. Although there is clearly insect transmission curring, it is believed that currently the disease is mostly spread through cuttings. Considering the importance of cassava in the region

(>55 million tons/year and >$10 billion business), urgent action is needed to stop the spread and put CMD under control. To this effect, the Global Cassava Partnership of the 21st Century (GCP21) and the International Center for Tropical Agriculture (CIAT), with additional funding from the Australian Centre for International Agricultural Research (ACIAR), organized a regional workshop on 18-20 September 2018, in Phnom Penh, Cambodia, aiming at establishing a unique regional plan of control of CMD in Cambodia. The workshop gathered 75 people belonging to international organizations, officers from the Ministries of Agriculture and Commerce of the four countries, donor representatives and communication experts. The outcome of the workshop is a list of recommendations in four different topics: Policy; Market Engagement, and Communication; Surveillance and Diagnostics; Virus-free Seed Multiplication; and Testing and Breeding Resistant Material (www.gcp21.org/meeting/cmd2018.html). This report provides the complete list of recommendations and also outl urgent need to put in place an immediate CMD Emer current proposal is a concept note briefly illus Plan for fundraising purposes.

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Industry is essential for the success of addressing cassava disease and maintaining the productivity and competiveness of the cassava sector

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