# ROLE AND RESPONSIBILITY OF THE DEPARTMENT OF CROP SEED, PROCEDURE OF VARIETY RELEASE AND NATIONAL VARIETY LIST IN CAMBODIA



**MS. SRUN KHEMA,**

**Deputy Director, Department of Crop Seed, GDA, MAFF**

**28 February 2022, Phnom Penh, Cambodia**

# ROLE AND TASK OF GOVERNMENT REGULATORY BODY

**THREE GOVERNMENT BODY**

- The Department of Crop Seed (DCS)
- The National Seed Councils (NSC)
- The National Variety Release Committee (NVRC)

# ROLE AND TASK OF DEPARTEMENT OF CROP SEED (DCS)

DCS
- Develop policy, strategy and budget plan and seed development program

DCS
- Develop the regulation under law on seed management and plant breeder's right,

DCS
- Manage and provide a technical training and extension

DCS
- Monitor and evaluate the quality of seeds in the production sites and laboratory

# ROLE AND TASK OF DEPARTEMENT OF CROP SEED (DCS)

DCS
- Inspect the seed exploitation

DCS
- Conduct the DUS test for registration and a new plant variety protection

DCS
- Develop and manage the national list of varieties

DCS
- Maintain contact with convention agreement and cooperation

DCS
- Develop the database for variety registration

# ROLE AND TASK OF NATIONAL SEED CONCIAL (NSC)

NSC

- Permission to seed farm, company or cooperative to produce seed

NSC

- Monitor seed production, storage on various farms

NSC

- Monitor the seed distribution and seed trade

NSC

- Monitor the process of seed registration

# ROLE AND TASK OF NATIONAL SEED CONCIAL (NSC)

NSC

- Coordinate dispute on seed sector and motivate individual public

NSC

- Contact with stakeholders and donor in for budget to enforce variety development and seed sector

NSC

- Set policy and strategic plan for the growth/ protection of all stakeholders

NSC

- Review regularly on organizational structure of seed sector in the country

# ROLE AND TASK OF NATIONAL VARIETY RELEASE COMMITTEE (NVRC)

- NVRC ➢ Decide which crops shall be included in the national list
- NVRC ➢ Decide whether to maintain or remove a variety request by breeders
- NVRC ➢ Prepare protocol and assessment criteria for each crops
- NVRC ➢ Testing new varieties to ensure that they are distinct, uniform and stable(DUS) and the value for cultivation or use(VCU)
- NVRC ➢ Adopt a standard name for the variety approved for release
- NVRC ➢ Prepare the forms and other documents that are required to operate the testing system,

# ROLE AND TASK OF NATIONAL VARIETY RELEASE COMMITTEE (NVRC)

NVRC
- Approve the test sites to be used for each crops

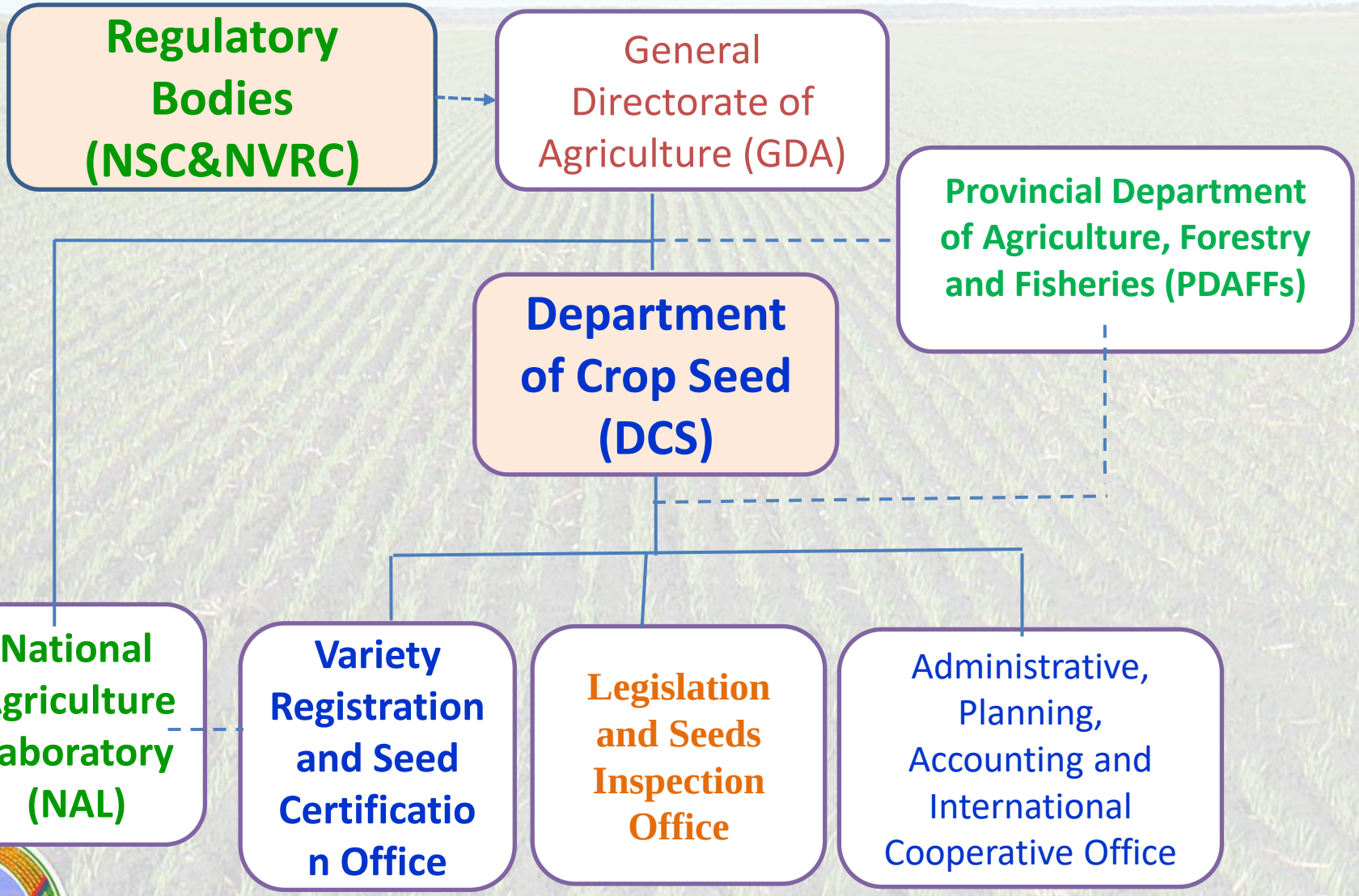
NVRC
- Inspect trial sites during the growing season

NVRC
- Receive feedback from relevant stakeholders on the use and performance of varieties

NVRC
- Decide an appropriate level of fees to be charged for variety release, DUS testing

NVRC
- Prepare a guideline describing the variety testing system for users.

# ORGANZATION STRUCTURE



# STRUCTURE OF SEED PRODUCTION SYSTEM IN CAMBODIA

## Seed Production System

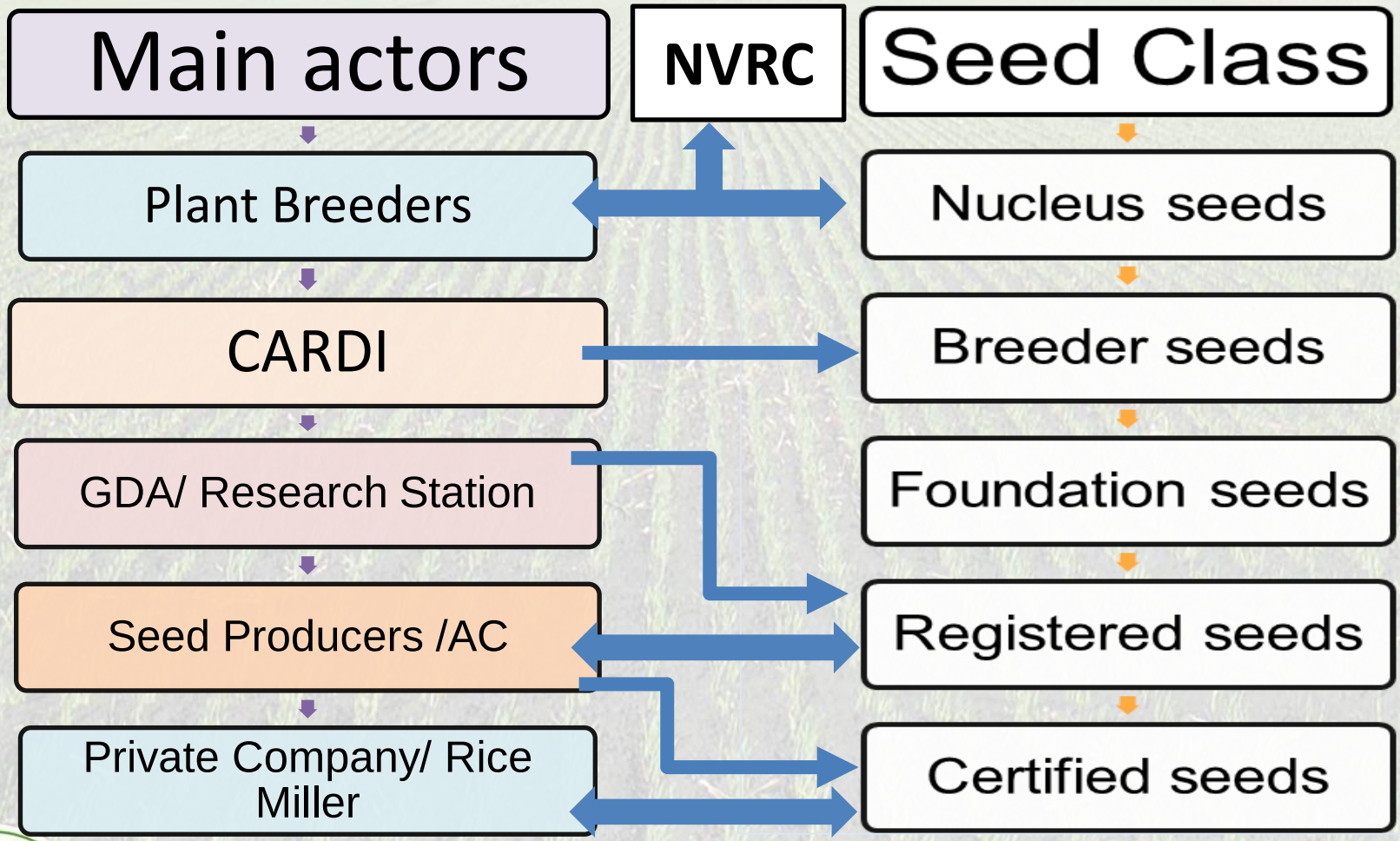
### Traditional Seed Production System

Farmer produce seed and keep the seed from generation to generation

### Modern seed production system

4 Classes system as BS, FS, RS and CS

# STRUCTURE OF SEED PRODUCTION SYSTEM IN CAMBODIA



- **The main chapter in the seed law as below:**

**The Seed Law content 9 chapters and 84 articles.**

- **Chapter1: General provision**
- **Chapter2: New Plant Variety Protection**
- **Chapter 3: Seed Management**
- **Chapter 4: Import, Export and Transit**
- **Chapter5: The National Fund for Seed Development**
- **Chapter 6: Seed Inspector**
- **Chapter 7: Penalties**
- **Chapter 8: Transitional Provision**
- **Chapter 9: Final Provision**

# MAFF AND MISTI IN NEW PLANT VARIETY PROTECTION

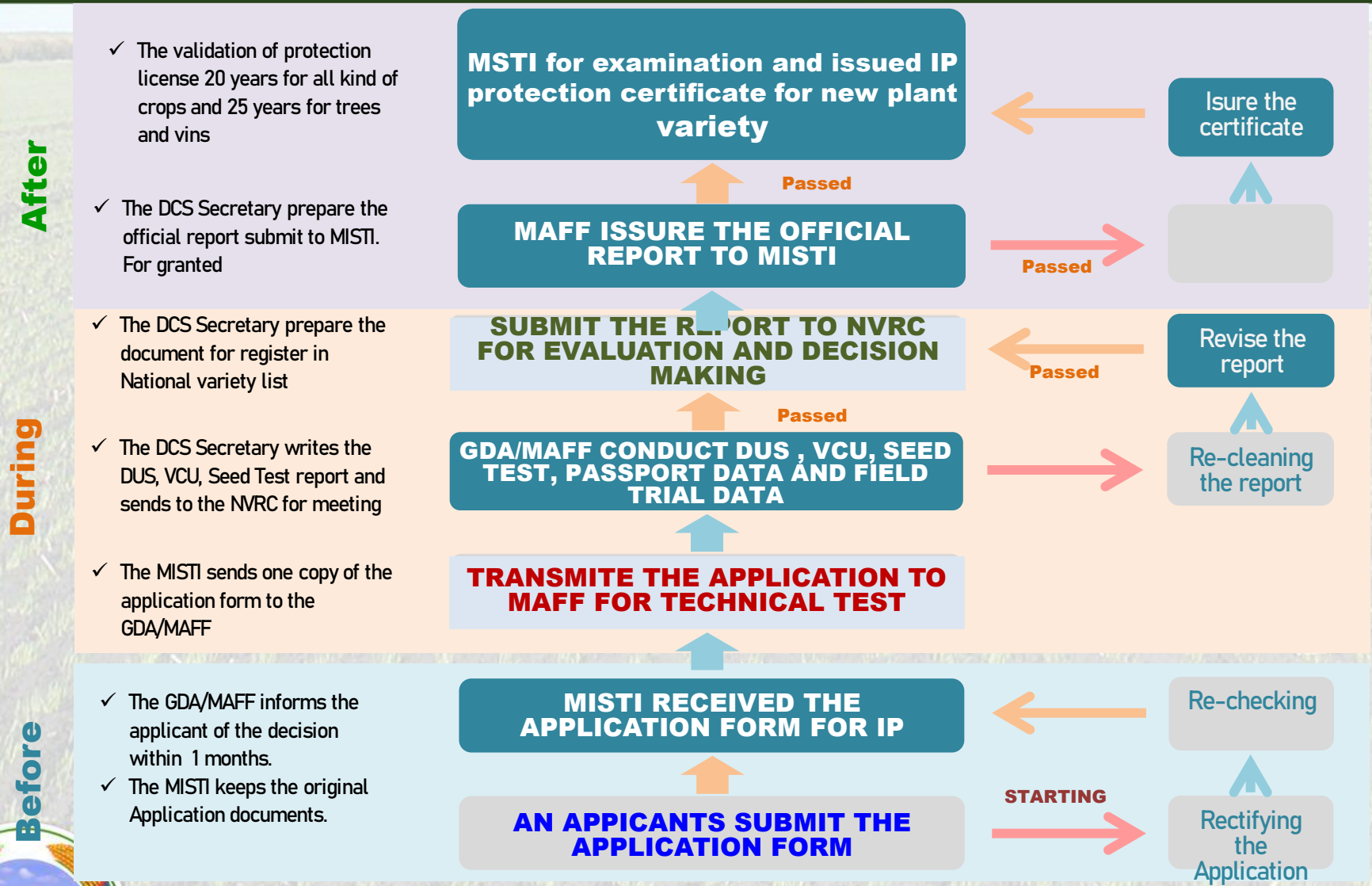
## MISTI TASK

1. Grant protection
2. Change right owners
3. Declare nullity and cancellation
4. Receive application and change or cancel variety denomination
5. Issue compulsory license
6. Record licensing contracts

## MAFF'S TASK

1. Determine the variety description or passport data
2. Determine the field experiment data for a new plant varieties
3. Conduct DUS test and VCU
4. Organize the NVRC meeting
5. Issue the official approval letter to provide the result of technical tests.

# PROCEDURE DIAGRAM OF NEW PLANT VARIETY REGISTRATION



# CONDITION FOR THE GRANT OF PLANT BREEDER'S RIGTH

- The variety is not in the list of dangerous variety.
- Novelty
- The variety have not been sold in the marketed more than one year, 6 years in the case of tree or vines, or over four years for all other variety
- Have the result of technical tests evaluation by MAFF as below:
- Conduct the DUS test, Distinctness, Uniformity, stability

▪ Description of variety to express the variety characteristic

+ Data on the field trial performance on each types of variety

+ Data on seed quality control

- Applicant need to send application form to Department of Crop Seed of GDA
- DCS/ GDA conduct the DUS and VCU test for two seasons
- NVRC evaluate the field trial performance or growing test
- DCS/GDA prepare and invite the member committee for meeting

- An applicant need to do the presentation on the research finding of new plant variety to NVRC during the meeting
- NVRC evaluation of research report and make a decision
- Register the new variety in the national variety list in Cambodia

# PROCEDURE IN THE REGISTRATION PROCESS

Application Form

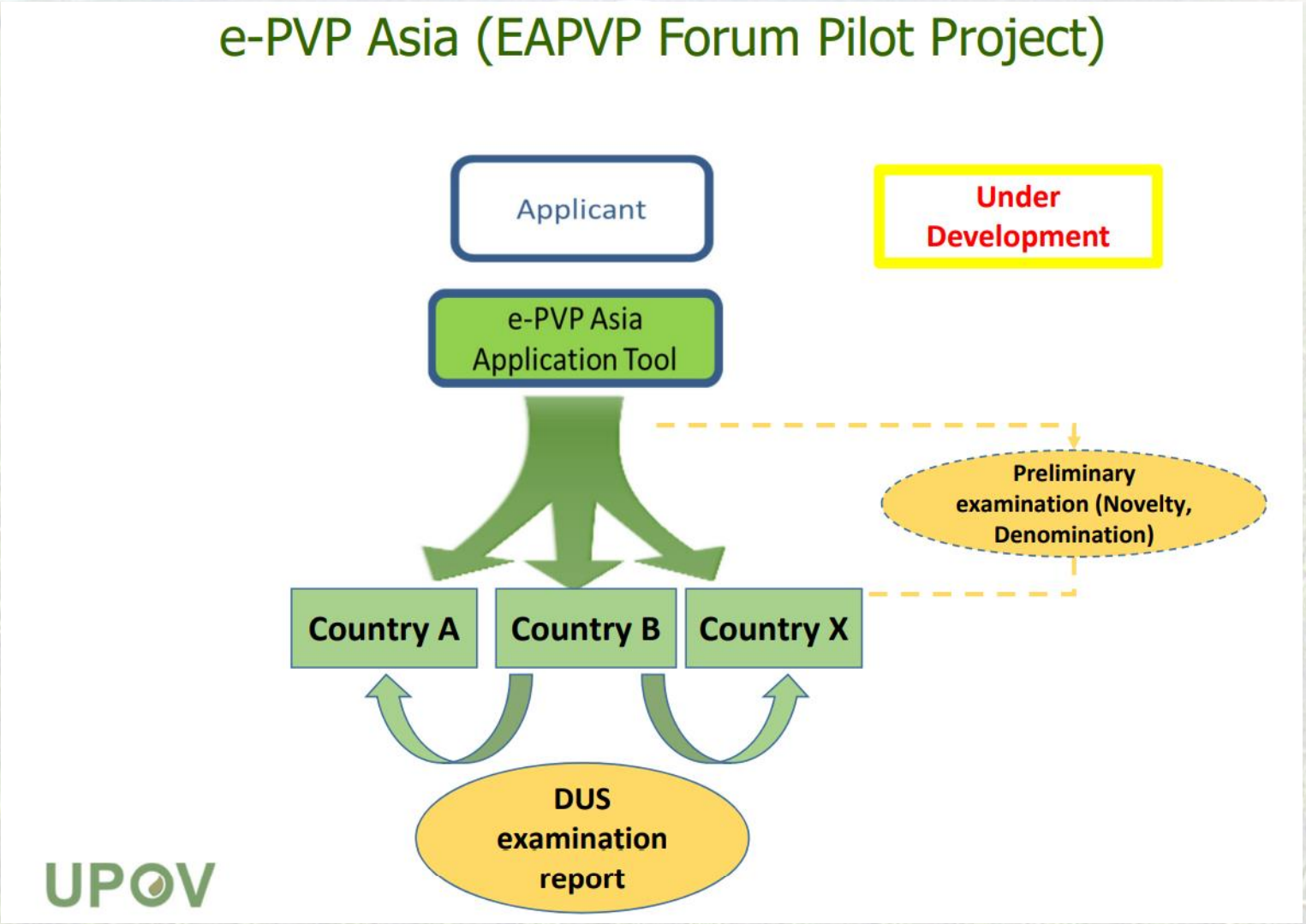
DUS test


Data collection and field evaluation

Presentation with NVRC

Register variety in the list of National variety

# CONDUCT DUS Test ACCORDING TO e-PVP Asia



# CERTIFICATION ISSURE BY MAFF

Certificate of Released Variety

Certificate No : 001

Applicant: Cambodian Agricultural Research and Development Institute (CARDI)

Crop Species: Oryza sativa (L.)

Variety Name: Sen Kra ob-01

Type: Inbred

Sensitivity to Photoperiod: None

Maturity: 105 - 115 Days

Date of Flowering:

Potential Yield: 3.9 - 4.9 t/ha

Special Value/Trait :

- Scent: Moderate aroma
- Mean of plant height (cm): 110
- Chalkiness (%): 1.6
- Chalky area: Small
- Grain length (mm): 7.2
- Grain width (mm): 2.0
- Amylose (%): 16

Phnom Penh, ...04...January...2020

Head of Varietal Release Committee

New Inbred Rice Variety Sen Kra Ob-01 was founder by CARDI

Certificate of Released Variety

Certificate No : 002

Applicant: General Directorate of Agriculture

Crop Species: Z.mays

Variety Name: Cambodia Hybrid Maize 01 (CHM-01) Type: Hybrid

Sensitivity to Photoperiod: None photoperiod Sensitive Maturity: 100 - 105 Days

Date of Flowering: 45 - 50 days after planting date

Potential Yield: 8.5 - 9.5 t/ha

Special Value/Trait :

- Hybrid seed single cross
- Deep orange grain color
- Percent of weight seed in one ear = 82%
- High resistance to Downy Mildew
- Weight per 1000 grains = 360 - 370g
- Protein content 9.31 ± 0.01% Lipid content 4.45 ± 1.90%

Phnom Penh, ...05...May...2020

Head of Varietal Release Committee

Cambodia Hybrid Maize 01 (CHM-01) was founder by the Department of Industry Crop

- **Existing varieties may be included in the national list of variety on the following condition:**
  - Have specific denomination, in order to avoid confusion with other variety
  - Retain their original denominations where the varieties are imported from foreign country,

- Distinct from the denominations of registered varieties
- Possess characteristics that are sufficiently uniform and that make it possible to identify.
- Field tests that give satisfactory result and carried out by a laboratory, specialized institute, or public or private research institution.

# VARIETAL CHARACTERISTICS
# PHKA RUMDUOL

- Line Designation : Somaly- 1771
- Parent : Somaly
- Year released : 1999

- Yield (t/ha) : 3.0 - 6.5
- Maturity (Date of flowering ) : October 10 –25
- Plant Height (cm) : 107 - 171
- Productive Tillers : 7.8 ± 2.9
- Grain Per Panicle : 133 ± 23
- Panicle Length (cm) : 22.7 ± 5.5
- Tolerance to abiotic stress : Submergence
- Resistance to biotic stress : BPH susceptible

- Grain Length (mm) : 7.5
- Grain Width (mm) : 2.1
- L:W Ratio : 3.6
- Brown Rice Shape : Slender
- 100 Grain Weight (g) : 3.0
- Milling Recovery (%) : 67.7
- Head Rice Recovery (%) : 52.8
- Chalkiness Score : Small (1)
- Amylose Content (%) : 13.8
- Gel Consistency (mm) : 81.0
- Gelatinization Temperature : Low
- Raw Rice Appearance : Translucent
- Raw Rice Acceptability : Excellent
- Cooked Rice Acceptability : Very good
- Aroma (Scent) : Scented/Soft texture

# VARIETY: PHKA RUMDUOL

## VARIETAL CHARACTERISTICS
## CARDI CHEY

- Line Designation : VC1973A
- Origin : AVRDC
- Year released : 2001

- Plant high (cm) : 50 –73
- Day to flowering (day) : 35
- Day to first harvesting (day) : 55
- Pod color at immature stage : Deep green
- Pod color at mature stage : Black

- Shape of ripe pod : Round
- Seed color : Light green
- Luster on seed surface : Shiny
- Percentage of the first harvest : 65-75
- Yield (t/ha) : 0.61-1.9
- Pods per plant : 12-20
- Seeds per pod : 7-12
- 1000 seed weight (g) : 74.7



## VARIETAL CHARACTERISTICS
## CMB1

- Line Designation : VC4152
- Origin : AVRDC
- Year released : 2009

- Plant high (cm) : 43 –67
- Day to flowering (day) : 35
- Day to first harvesting (day) : 60
- Pod color at immature stage : Deep green
- Pod color at mature stage : Black

- Shape of ripe pod : Round
- Seed color : Light green
- Luster on seed surface : Dull
- Percentage of the first harvest : 65-75
- Yield (t/ha) : 0.9-2.3
- Pods per plant : 10-19
- Seeds per pod : 7-13
- 1000 seed weight (g) : 70.0

## VARIETAL CHARACTERISTICS
## LOEUNG MONGKUL

- Line Designation : COXTAXTLA-S0031
- Origin : CIMMYT
- Year released : 2006

- Yield (t/ha) : 7.4 ± 3.2
- Duration (day( : 100 – 106
- Male flower (Day) : 51 ± 3
- Female flower (Day) : 53± 6
- Plant Height (cm) : 201 ± 47
- Ear high (cm) : 94 ± 24
- Ear length (cm) : 15 –30
- Number row of seed : 12 –16
- 100 seed weight (g) : 30.0
- Grain type : Normal
- Grain color : Yellow



## VARIETAL CHARACTERISTICS
## SAR CHEY

- Line Designation( Origin) : S-99TL WQ-HG-AB
- Origin : CIMMYT
- Year released : 2006

- Yield (t/ha) : 6.4 ± 2.3
- Duration (day) : 104 – 112
- Male flower (day) : 53 ± 4
- Female flower (day) : 55 ± 4
- Plant high (cm) : 196 ± 40
- Ear high (cm) : 101 ± 24
- Ear length (cm) : 15-25
- Number row of seed : 14-16
- 100 seed weight (g) : 26.6
- Grain type : QPM
- Grain color : White

## VARIETAL CHARACTERISTICS
## NEANG PICH

- Line Designation : CLN2498A
- Parent : AVRDC
- Year released : 2006

- Yield (t/ha) : 19 –30
- Duration (day) : 85
- Day to flowering (day) : 50 -55
- Day to Fruit setting (day) : 57 -65
- Plant high (cm) : 60 –100
- Tolerance to abiotic stress : Not Applicable
- Resistance to biotic stress : TYLCV
- Fruit shape : Oblong
- Fruit Skin sickness :
- Fruit weight average (g) : 55
- Brix (%) : 5.5




## VARIETAL CHARACTERISTICS
## NEANG TAMM

- Line Designation : CLN2418A
- Origin : AVRDC
- Year released : 2006

- Yield (t/ha) : 21 –28
- Duration (day) : 85
- Day to flowering (day) : 50 -55
- Day to Fruit setting (day) : 57 -65
- Plant high (cm) : 60 –70
- Tolerance to abiotic stress : Heat
- Resistance to biotic stress : TYLCV
- Fruit shape : Round
- Fruit Skin sickness (mm) : 0.45
- Fruit weight average (g) : 99
- Brix (%) : 4.5

## VARIETAL CHARACTERISTICS
## CHAN AMRITH

- Line Designation : WMC4-8-6
- Origin : Cambodia
- Year released : 2006

- Yield (t/ha) : 47 –50
- Duration (Day) : 60 –65
- Vine length (m) : 3 –5
- Number of branch per vine : 8 –10
- Fruit shape : Round
- Weight ( kg) : 3.0 –4.5
- Fruit color : Dark green
- Fruit skin stripe color : No stripe
- Thickness of pericarp (mm) : 18 –21
- Rind thickness : Thin
- Flesh color : Red
- Flesh structure : Soft
- Seed color : Brown
- Brix (%) : 10 -11



## VARIETAL CHARACTERISTICS
## CHAN AMRITH

- Line Designation : WMC4-8-6
- Origin : Cambodia
- Year released : 2006

- Yield (t/ha) : 47 –50
- Duration (Day) : 60 –65
- Vine length (m) : 3 –5
- Number of branch per vine : 8 –10
- Fruit shape : Round
- Weight ( kg) : 3.0 –4.5
- Fruit color : Dark green
- Fruit skin stripe color : No stripe
- Thickness of pericarp (mm) : 18 –21
- Rind thickness : Thin
- Flesh color : Red
- Flesh structure : Soft
- Seed color : Brown
- Brix (%) : 10 -11

112

## VARIETAL CHARACTERISTICS
# KEO REACH

- Line Designation : Keo Chin -9
- Origin : Keo Chin
- Year released : 2006

- Flowering date : November
- Inflorescence shape of flower : Broadly pyramidal
- Harvesting date : April
- Fruit weight (g) : 39.0
- Skin color of immature fruit : Green
- Skin color of Ripe fruit : Yellow
- Pulp color of ripe fruit : Yellow orange
- Fruit shape : Oblong
- Fruit skin surface texture : Smooth

- Pulp texture of ripe fruit : Intermediate
- Pulp Juiciness : Slightly juicy
- Brix ( on juice) : 24.0
- Fiber (Flesh) g/100 flesh : 0.62
- Humidity (Flesh) g/100 flesh : 81.5
- Pulp aroma (Scent) : Intermediate



## VARIETAL CHARACTERISTICS
# KEO TEP

- Line Designation : Keo Chin -83
- Origin : Keo Chin
- Year released : 2006

- Flowering date : November
- Inflorescence shape of flower : Broadly pyramidal
- Harvesting date : April
- Fruit weight (g) : 43.0
- Skin color of immature fruit : Green
- Skin color of ripe fruit : Yellow
- Pulp color of ripe fruit : Yellow orange
- Fruit shape : Oblong
- Fruit skin surface texture : Smooth

- Pulp texture of ripe fruit : Intermediate
- Pulp Juiciness : Slightly juicy
- Brix ( on juice) : 24.5
- Fiber (Flesh) g/100 flesh : 0.45
- Humidity (Flesh) g/100 flesh : 79.9
- Pulp aroma (Scent) : Intermediate

# Q & A?

# Thank you for your pay attention