

MECHANIZATION R&D - technology generation for sustainable agriculture in Malaysia

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**R&D-NATIONAL
DEVELOPMENT**

**MECHANIZATION
R&D - GOAL**

R&D VALUE CHAIN

**MECHANIZATION
R&D SCOPE**

CONCLUSION

CATEGORY OF R&D



PRIVATE SECTOR



PUBLIC SECTOR

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PRIVATE SECTOR



PUBLIC SECTOR

✓ **GOVERNMENT
RESEARCH INSTITUTION
(GRI'S) 20.3%**

✓ **INSTITUTE OF HIGHER
LEARNING (IHL'S) (14.4%)**

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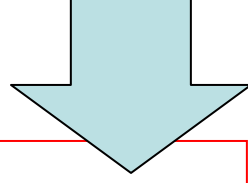


PRIVATE SECTOR



PUBLIC SECTOR

MECHANIZATION
PEER-REVIEWED
R&D 2001 - 2005
~ RM20 million



✓ GOVERNMENT
RESEARCH INSTITUTION
(GRI'S) 20.3%

✓ INSTITUTE OF HIGHER
LEARNING (IHL'S) (14.4%)

WHAT IS R&D

Activities comprise of creative work undertaken on a systematic basis in order to increase the stock of knowledge and the use of this stock of knowledge to device new technologies.

R&D - PULSE OF A NATION

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**WITHIN THE CONTEXTS OF
AGRICULTURAL AND FOOD,
MECHANIZATION R&D CAN:**

ECONOMICALLY SUSTAINED

EFFICIENT AND COMPETITIVE

**HIGH-QUALITY FOOD/FEED/FIBRE
PRODUCTION**

**MAINTAIN A SUSTAINABLE
RELATIONSHIP WITH NATURAL
RESOURCES AND ENVIRONMENT**

R&D BENCHMARK

OF THE MANY GREAT INVENTION IN
MECHANIZATION, COMBINE
HARVESTER HAS BEEN THE BENCHMARK
OF R&D SUCCESS IN MECHANIZATION

PRODUCTIVITY IMPROVEMENT - > 100 FOLDS
DESPITE THE ACHIEVEMENT, R&D IS STILL ON-GOING
TILL THIS DAY



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GOAL

CHALLENGES

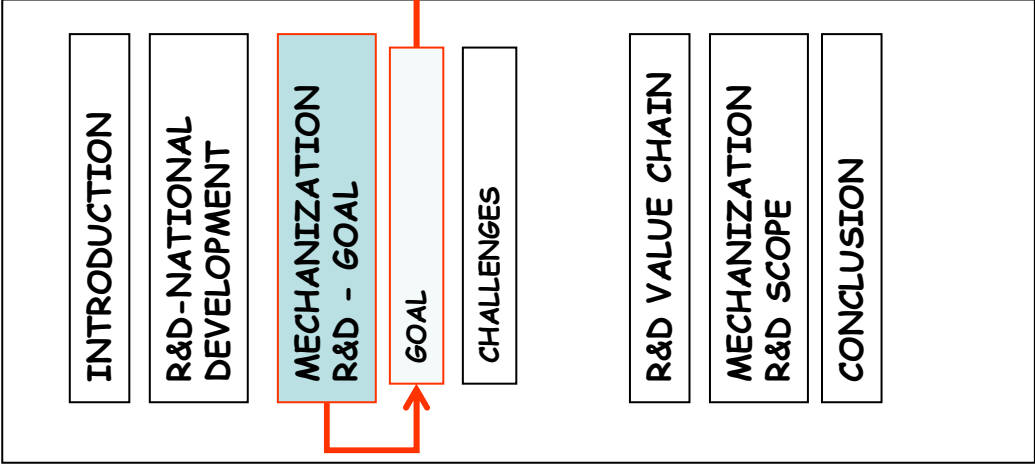
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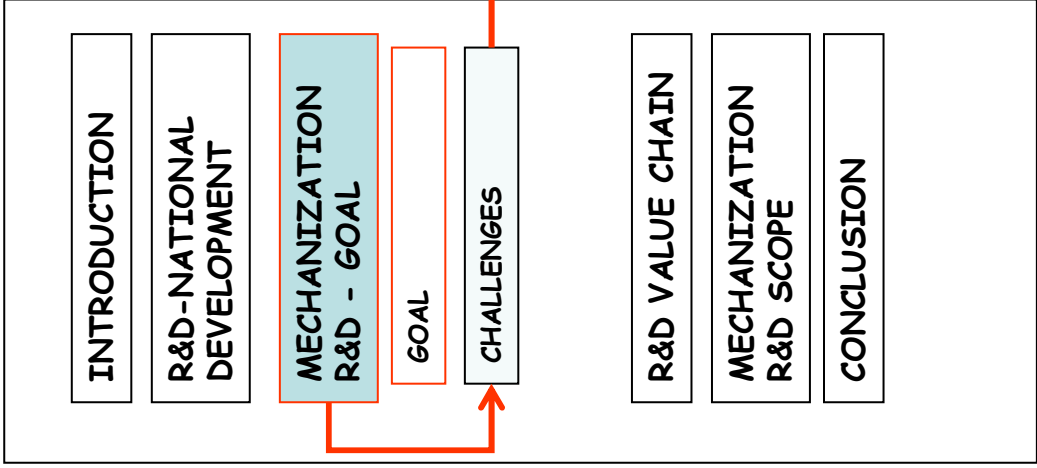
MECHANIZATION R&D - GOALS

- TO REDUCE DRUDGERY
- TO INCREASE PRODUCTIVITY
- TO INCREASE TIMELINESS AND QUALITY

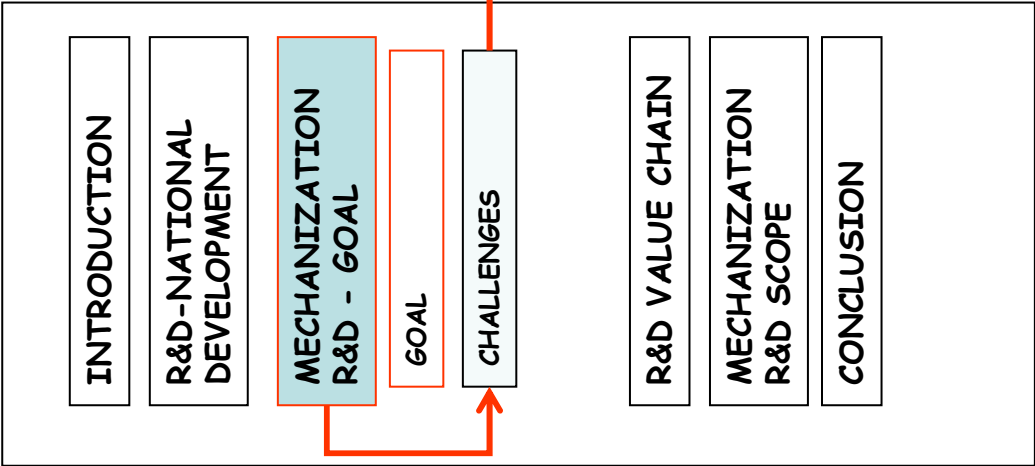


R&D CHALLENGES

- TECHNOLOGY ADOPTION IS LOW
- TECHNOLOGY MISS MATCHING
- R&D ROUTE - PROCESS
- COMMERCIALIZATION INFRA - IPR



R&D CHALLENGES

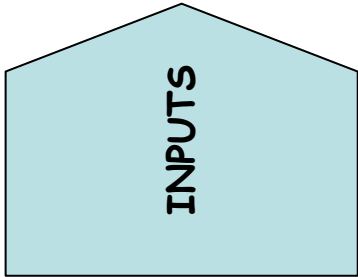


□ FUNDING

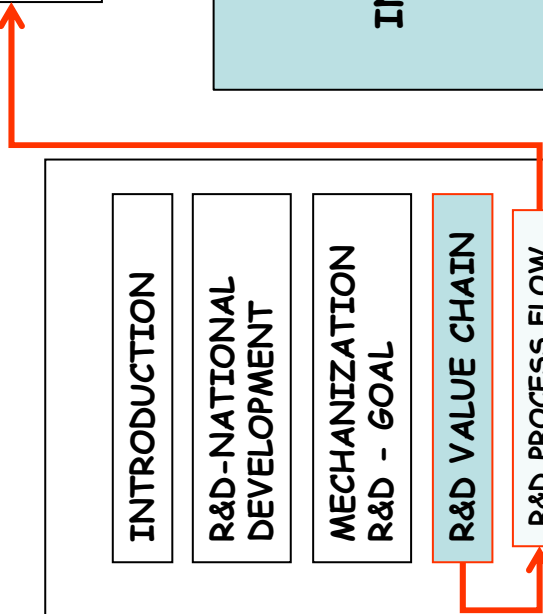
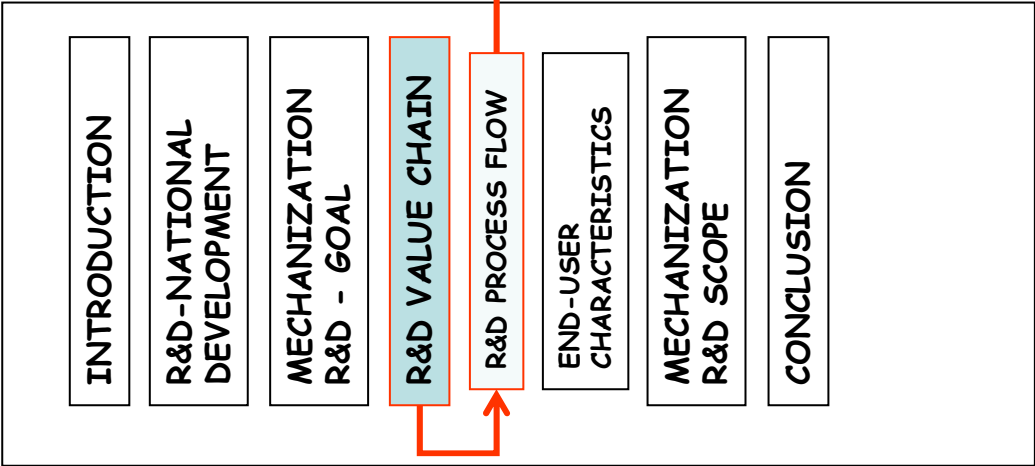
□ HUMAN CAPITAL - TALENTED RESEARCHERS TO PRODUCE QUALITY R&D; basic ingredient for a sustained R&D

“a man paints with his brain and not with his hands” – Michelangelo

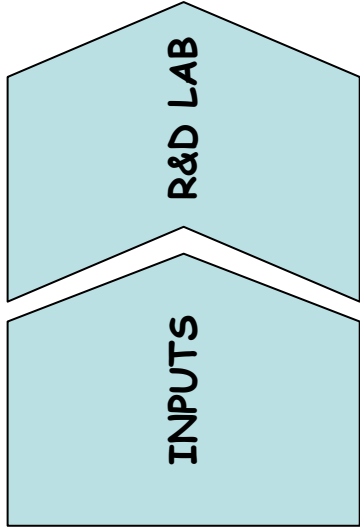
R&D VALUE CHAIN



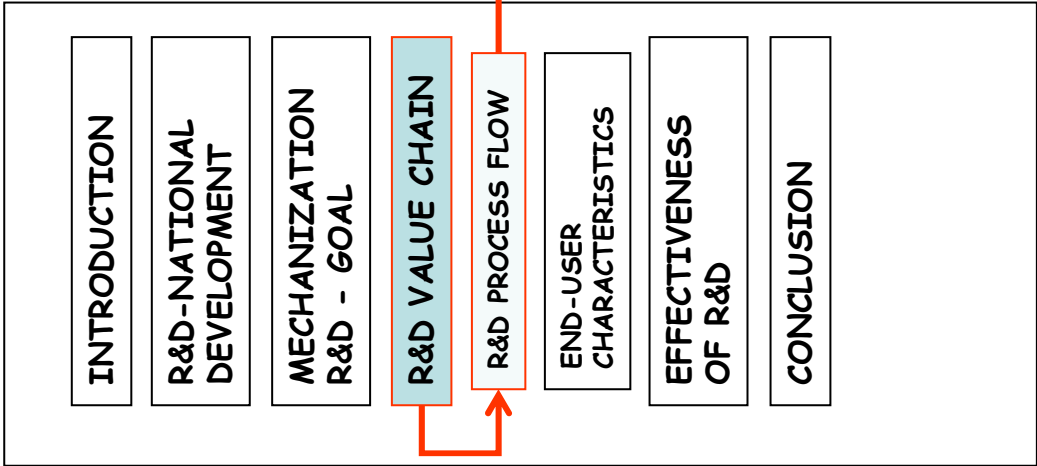
- People
- Ideas
- Equipment
- Funds



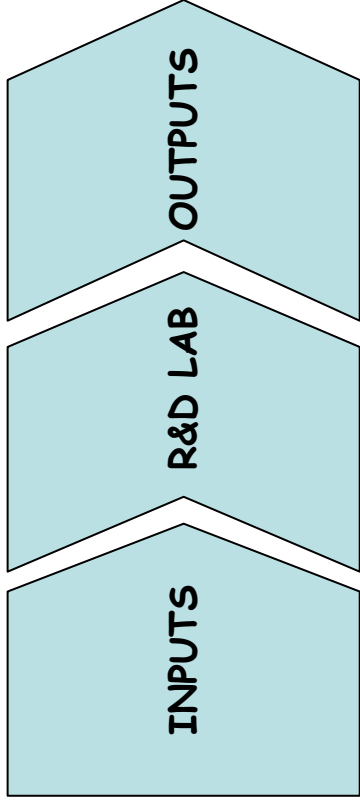
R&D VALUE CHAIN



- People
- Ideas
- Equipment
- Funds
- Exploration
- Testing
- K-building



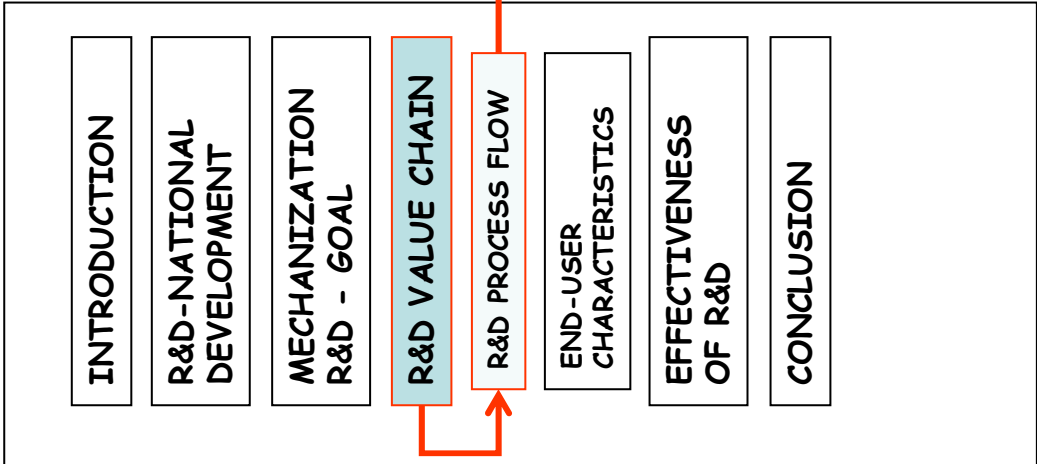
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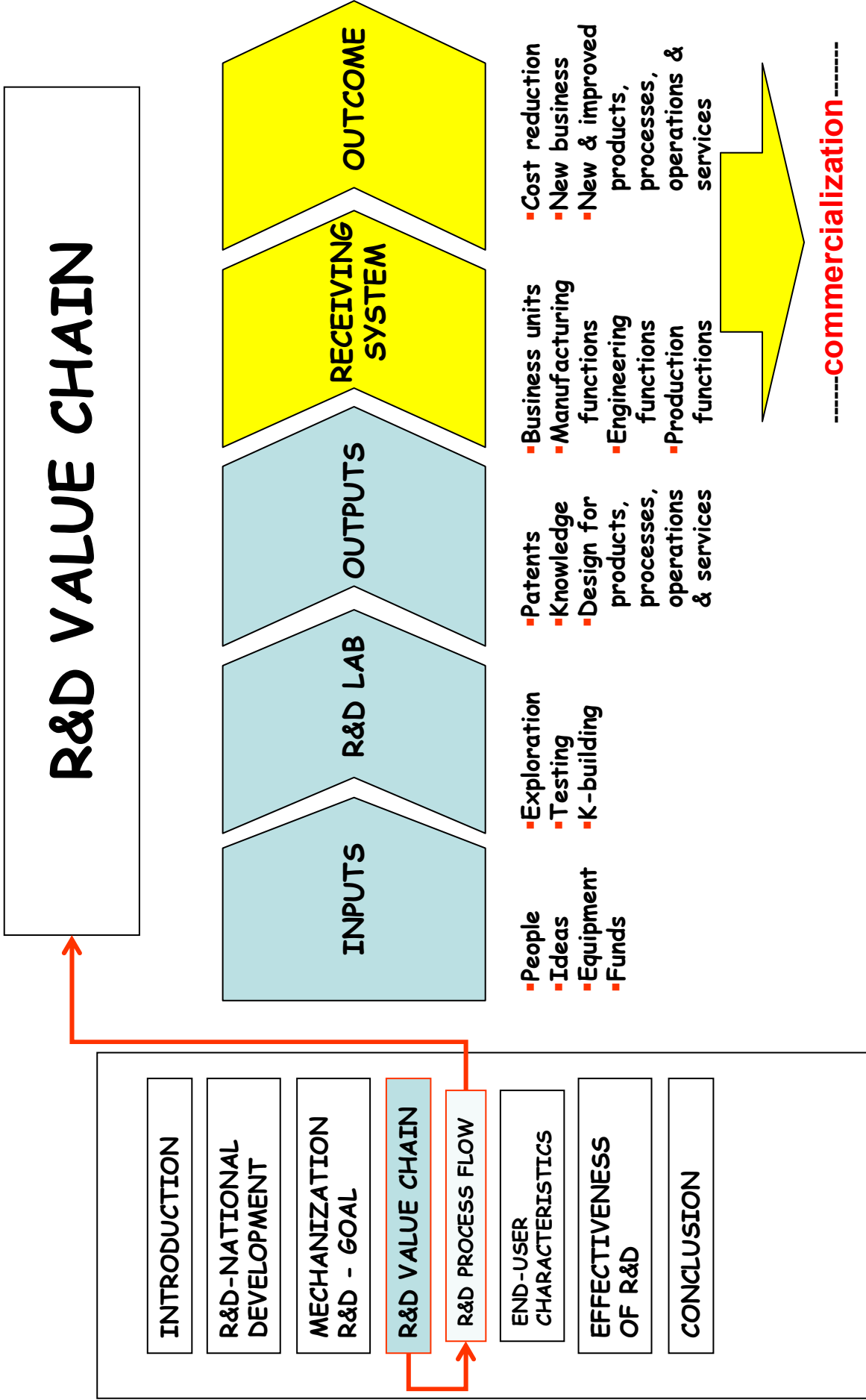


- People
- Ideas
- Equipment
- Funds

- Exploration
- Testing
- K-building

- Patents
- Knowledge
- Design for products, processes, operations & services





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END-USER
CHARACTERISTICS

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MEET THE END-USER'S NEEDS

*COST EFFECTIVE

*EASY TO
OPERATE

*LOW COST



CONVENTIONAL

POWER &
MACHINERY

AQUACULTURE
ENGINEERING

FARM
STRUCTURE

SOIL &
WATER

NATURAL
RESOURCES

AGRICULTURAL
PROCESS

FOREST
ENGINEERING

OTHERS

FOOD
PROCESS

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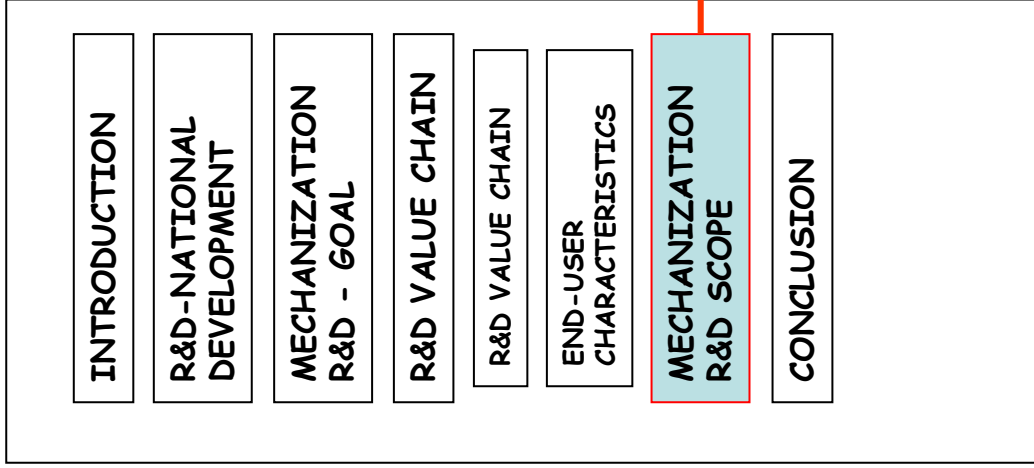
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CONVENTIONAL - OUTPUTS

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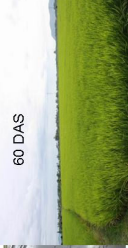
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FARM MACHINERY



Penabur Baris Jenis Galas
Berenjin untuk Sawah Basah



60 DAS

100 DAS

6 DAS

16 DAS

26 DAS



CONVENTIONAL - OUTPUTS

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BIOMATERIAL HANDLING



CONVENTIONAL

POWER & MACHINERY
FARM STRUCTURE
AQUACULTURE ENGINEERING
SOIL & WATER
NATURAL RESOURCES
FOREST ENGINEERING
FOOD PROCESS
AGRICULTURAL PROCESS
OTHERS

NEW SPECIALTY AREAS

MECHATRONIC
CONTROLLED ENVIRONMENT
PRECISION AGRICULTURE
AUTONOMO US VEHICLE
PHOTONIC
GIS
NANOTECHNOLOGY
BIOSENSOR
IMAGERY
ICT
OTHERS

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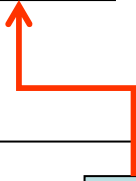
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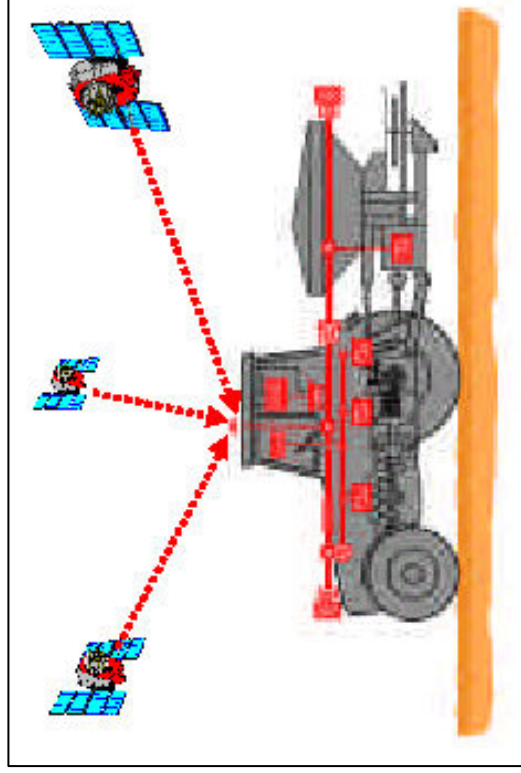
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PRECISION
AGRICULTURE



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CONTROLLED
ENVIRONMENT



IMAGERY

NEW SPECIALTY AREAS

□ HOW TO BALANCE A MIXTURE OF R&D PORTFOLIO ESPECIALLY THOSE UNDERPINNING THE FUTURE AGRICULTURAL AND FOOD MECHANIZATION NEEDS

LONG TERM, CROSS CUTTING AND INTERGRATED SET OF DISCIPLINES AND PRIORITIES

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**R&D HAS A SIGNIFICANT ROLE IN
GENERATING SUSTAINABLE
TECHNOLOGY**

**MECHANIZATION R&D MUST
EMBRACE NEW DISCIPLINES INTO
ITS R&D AGENDA TO MEET NEW
DEMANDS**

THANK YOU

