

# Computation of Agriculture: Decision Support e-Portal

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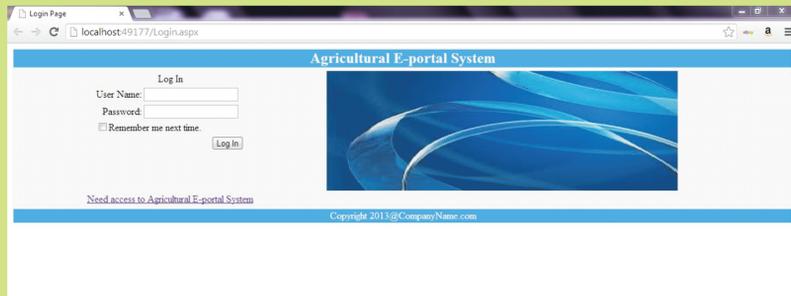
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## Introduction

- India the subcontinent is Agriculture based country with second highest population in the world.
- Computation of Agriculture is an attempt to organize agriculture related information in presentable format.
- The collection and storing of data and retrieving information out of it is the major role expected to be played by this system.
- The agricultural related information collected will generate indices which will help to gauge agricultural progress of different administrative divisions.

## Agri e-Portal System



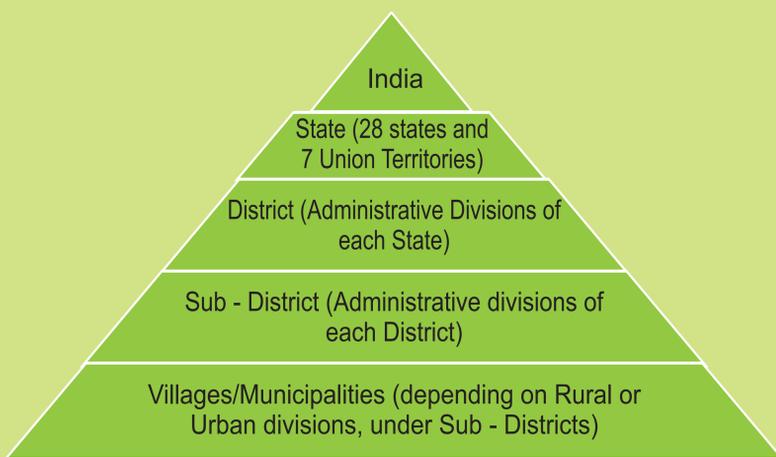
## System Architecture

### Access Rights:

The system can be accessible on different user rights according to the role assigned to the user. The roles are as follows:

1. Supervisor (Sub-district, District and State levels)
2. Data Loader
3. Report Viewer (Sub-District, District and State levels)

## Administrative Hierarchies in India



## Agri-Information Inputs:

Information available from administrative levels are as follows:

1. Land under Cultivation (Irrigated and Rainfed)
2. Season wise Farm Harvest
3. Inputs used for Agricultural production in the Season (information quality may vary)
4. Per unit cost of inputs used for Agricultural production in the season
5. Market value of the Agricultural Produce in the Season
6. Environmental conditions such as rainfall, humidity, sunshine, soil conditions etc.

## Socio-Economic Inputs:

1. Population of the region and percentage of population engaged in agriculture
2. Population under Poverty Line
3. Population according to religion (as life style varies distinctly with religion)
4. Sex ratio of the region (women contributes significantly in agriculture)

## Key Performance Indicators:

Following KPIs can monitor agricultural progress at administrative levels:

1. Percentage of Area under Cultivation at each levels (Sub-district, District and State levels)
2. Percentages of Irrigated and Rainfed Areas under cultivation
3. Percentage change of Area under cultivation as well as Irrigated and Rainfed Areas
4. Productivity (Farm Harvest/Area)
5. Economic return (Market Value of the Farm Harvest/Cost of Agricultural Produce)
6. Percentage change in Environmental Conditions from season to season and year to year

## Dashboards:

1. Area under cultivation as well as Irrigated and Rainfed Areas
2. Productivity
3. Economic return
4. Climate change indicators

## Forecasting and Decision Making:

- Statistical and mathematical models will be designed to forecast the yield of various field and horticultural crops.
- Yield is a complex trait governed by various direct and indirect attributes:
  - **Available inputs** (available farmland, type of crop and varieties, seed rate, fertilizer, pesticide, irrigation and labor/tractor)
  - **Environmental conditions** (rainfall, average day and night temperatures, humidity and hours of sunlight)
  - **Socio-economic conditions** (average income of farmers, population under below poverty line, staple food of the region and farmland under food grain production, horticultural crops and cash crops)
- Price of the crop again depends on agricultural harvest available, crops available in cold storages and import and export of crops from other regions.

## Conclusion

- The Agri-based e-portal is under developing phase and need more screening and suggestion to develop it in reality.
- The Key Performance Indicators and dash boards will help to study the progress of agriculture at different administrative levels of the country
- The forecasted information will give farmers about the future market value of their harvests
- The system can bridge the communication gap between sophisticated laboratories and farmers.
- It is expected to be a useful tool for agriculture and can attempt to address many issues related to food insecurity

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