#### **Data Cleaning/Pre - processing:**

Raw Dataset(.csv)

To prepare the dataset for analysis in Tableau, several steps were undertaken to ensure consistency, readability, and compatibility:

* **Removed Text Placeholders**: (e.g.: "The expenditure is under compilation") → NULLs
* **Stripped Commas & Whitespaces** → Clean numeric format (e.g., 3,199.50).
* **Converted to Float** → For aggregation & computation
* **Handled NULLs** via Tableau tools (e.g., ZN, filters)
* **Automated with Macro** for batch cleaning of financial columns

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Clean Dataset(.xlsm)

## 

## **Objectives:**

## **1. KNOW YOUR AUDIENCE**

### **a. List the primary groups or individuals to whom you’ll be communicating.**

### Deputy Secretary, Department of Agricultural Research and Education

* Policy advisors and senior officers in the Ministry of Agriculture
* State-level funding coordinators and agricultural education boards
* Research grant approval committees and ICAR decision-makers

### **b. If you had to narrow that to a single person, who would that be?**

**Primary Audience**: Deputy Secretary, Dept. of Agricultural Research & Education. (This person is the main decision-maker and influencer regarding funding, research policies, and institutional development).

### **c. What does your audience care about?**

The Deputy Secretary is primarily interested in:

* Fund utilization efficiency
* Regional equity in allocation
* Trends in source-wise contribution

### **d. What action does your audience need to take?**

They need to:

* Design performance-based policies
* Rebalance funding strategies
* Address underutilization & fund concentration

### **e. What is at stake? What is the benefit if the audience acts in the way you want them to? What are the risks if they don’t?**

* *Benefit*: Strategic investments drive research & food security
* *Risk*: Misuse or stagnation of public funds, delayed progress

## **2. WHAT?**

## **Question 1:** Which universities/states received the highest total funding (2004–13)?

### **Question 2:** Are expenditures aligned with allocations year-wise?

### **Question 3:** Which funding source—State, ICAR, Others—contributes the most, and how consistently?

## **3. Big Idea**

## From 2010 to 2013, India's State Agricultural Universities saw over ₹5,500 crore in total allocations, yet ₹240+ crore remained unspent, revealing critical underutilization. With 3 universities receiving over ₹300 crore each, funding remains highly concentrated. Realigning utilization with allocations is not just about accountability, it's about securing India’s agricultural innovation and food future."

## **Viewpoint:** Data shows where funds flow, but also where they stall. Today’s policy blind spots may become tomorrow’s productivity crises.

## **4. HOW?**

| **Chart** | **Viz Type** | **Purpose** | **Gestalt Principles** | **Pre-attentive Attributes** |
| --- | --- | --- | --- | --- |
| **Chart 1**: Total Funding by University | **Horizontal Bar Chart** | Rank universities by total funds | **Similarity** (Color-Coded Bars) **Proximity** (grouped bars) **Common Region** (shared axis) | -Color for fund types; Bar length for magnitude; Top-sorted for visibility. |
| **Chart 2**: Allocation vs Expenditure Trend | **Dual Line Chart** | Year-wise budget utilization | **Continuity** (smooth flow) **Figure/Ground** (distinct lines) **Closure** (inferred continuity) | Line color/thickness; Axis movement for trend; Gap width for insight. |
| **Chart 3:** Funding Source Contribution | **Stacked Area Chart** | Trend of contributions by source | **Connectedness** (flowing areas) **Similarity** (consistent colors) **Symmetry** (balanced layout) | Area size for dominance; Horizontal timeline flow; Layered stacks for shifts. |

### 

### **Observation:**

**Chart 1: Total Funding by University**

1. **Concentration of Funding:** Marathwada leads with ₹30,000+ lakh.
2. **Skewed Distribution:** Gap after top 3–5 indicates skewed distribution.
3. **Strategic Spotlight Needed:** Suggests reviewing mid-tier institutions' needs/performance.

### **Chart 2:** **Annual Trend: Budget Allocation vs Expenditure**

1. **Tight coupling until 2009:**  Blue (Allocation) and orange (Expenditure) lines track almost identically up to 2009-10, suggesting efficient utilisation in early years.
2. **Post-2011 utilisation gap:** Post-2011: Allocation peaks (~₹62K lakh), Expenditure lags.
3. **Bottleneck:** ₹5–10K lakh annual unspent funds suggest bottlenecks.
4. **Long-term trend still positive:** Despite the 2012-13 dip, the trajectory from 1998 is upward: allocations and spend rise from near-zero to multi-tens-of-thousands of lakh, underscoring sustained investment growth.

**Chart 3: Fund Allocations by State, ICAR, and Other Sources over the years**

1. **Steep expansion 2007-11:** State funding dominates, especially after 2007–08**.**
2. **ICAR’s step-up but still secondary:** ICAR Allocation stays modest (<₹21 K lakh at peak) yet roughly quadruples between 2008-09 and 2010-11, showing targeted central infusions.
3. **Other sources remain negligible:** Even at its 2010-11 high (~₹8 K lakh) “Other” never reaches 15 % of State money, indicating limited success in diversifying revenue.
4. **Average lines reveal under-performance:** All three bands sit well above their dotted “Average” lines only in 2009-12, flagging earlier years as under-funded relative to the long-run norm.

**Data Narrative: Agricultural University Funding Analysis (1998–2013)**

* **Top Recipients**:  
  Marathwada Agricultural University received the highest funding, with allocations heavily concentrated among the top 3–5 universities.
* **Funding vs. Spending**:  
  Both allocation and expenditure surged after 2005–06, peaking in 2011–12. However, spending often lagged behind allocation, hinting at underutilization.
* **Funding Sources**:  
  State governments contributed the most; ICAR funding remained steady but modest. Other sources had minimal impact.
* **Interactive Features**:  
  Users can filter by state, adjust the number of universities shown, and add custom reference lines. Tooltips provide year-wise insights including unspent funds and utilization percentage.

**A screenshot of a graph

AI-generated content may be incorrect.**

This interactive Tableau dashboard analyzes funding trends across India’s State Agricultural Universities (SAUs) over 15 years.

Tableau Dataset(.csv): <PreProcesssed_Total_budget_and_expenditure_of_State_Agricultural_Universities.csv>

**Key Insight:**

* Rapid budget growth didn’t always translate into proportional expenditure. A few universities dominate the funding landscape, with room to explore equity and efficiency in allocation.
* Funding has grown exponentially post-2005, but **expenditure efficiency varies**.
* A few universities receive a **disproportionate share of total funds**, indicating **possible inequities** in allocation.
* **State governments** are the **primary funders**, with ICAR playing a supplemental role.
* Custom controls and filters enhance interpretability, making the dashboard **both descriptive and diagnostic**.