





Kutumba, Karnataka, India

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Karnataka

- Located in Southern India
- 61.1 million population/13.5 million Households (2011 Census)
 - 13.2% of the population multi-dimensionally poor
- One of the Top 5 states in India
 - per-capita Gross State Domestic Product (GSDP) of INR 0.305 million (estimated for FY 22)
- A major job producer
 - 10% of the formal jobs in the country
 - Contributes 8.8% to the national Gross Domestic Product.
- 3rd among States SDG India Index Report 2020-21.
- Pioneer state in e-Governance
 - Only state to have a separate department of e-Governance est. in 2003.
 - Citizen services/benefits delivered electronically
 - Citizen Service Centres at Village level citizen access to online services

Information systems landscape in Karnataka

Common digital infrastructure









Suvidha (Eligibility discovery)







eProcurement Portal State Scholarship Portal

Bhoomi (Land records)





Nadakacheri
(Income and caste data)



MGNREGA (Public works)



e Sahamati (Credential verification service)

Social Protection programmes

• 41 departments implements 1800+ welfare schemes/programmes

SP program	Target group/function	Lead agency	Coverage (HHs/individuals)
Public Distribution System (PDS, subsidized food transfer)	Priority and Non Priority Households	Food and Civil Supplies Department	15 million HHs/ 55 million individuals
Ayushman Bharat Arogya Karnataka (Non-contributory targeted health insurance)	All families residing in Karnataka	Health and Family Welfare department	10 million individuals
Social Security Pensions (Social pensions)	Vulnerable Groups (Senior Citizens, Specially Abled, Widows, Destitute)	Directorate of Social Security Pensions	7.3 million individuals
Scholarship Programmes (Pre-matric and Post-matric)	Students	Depts. of Social Welfare, Tribal Welfare, Backward Classes Welfare and Minority Welfare	3.5 million students
CM Raitha Vidya Nidhi Scheme (Conditional cash transfer)	Students belonging to farmer families	Dept. of Agriculture	0.5 million students
Rural and Urban Housing	Households without house or living in kucha house	Rajiv Gandhi Rural Housing Corporation	0.2 million households

What ails Karnataka's Service delivery system?

- High Barriers for poor and vulnerable to get social benefits
- Lack of enough resources cornering of benefits by powerful and influential
 - No need score based prioritisation of applicants
- Rent seeking and inefficient state machinery to administer benefits
- Lack of awareness among poor and vulnerable about government benefits
- Government system not capable of helping poor facing sudden shocks

Introducing



Kutumba: a Social Protection System cum Entitlement Management System

Created under sec 4(4)(b)(ii) of Aadhaar Act with following objectives

- Easy access to government benefits by poor and needy Bringing inclusive growth
- Prioritise poor and needy for getting government benefits based on Need score
- Minimise or remove state machinery in assessing needs and condition of poor AND to administer benefits – automation to eliminate leakages
- Enable poor to seek and get state help when faced with sudden shocks
- Evidence based planning *Data Analytics*
- Ask data only once Once Only principle
- Government benefits to automatically reach poor as per their entitlement proactive
 Governance

How Kutumba has evolved

2018-19 2019-20 2020-21 2021-22 As on date

 Announced in the Budget Kutumba, an Entitlement Management System Family ID shall be created

- Proof of Concept carried out
- MDM technologies
- Field Survey

- Centralized data repository created.
- 18 Databases connected to Public Distribution System database
- Family ID of 54 million citizens created

- Included in the Budget
- Family ID to be developed into an Social Protection System with 5 components
- Social
 Protection
 System with 5
 components
 put in place
- Suo-moto delivery of benefits on entitlement basis initiated

KUTUMBA ECOSYSTEM



1. Social Registry

- Centralized <u>dynamic</u>, <u>self updating</u> data repository
- 15 million families and 55 million residents covered
- Citizens can enroll /register their families in Kutumba self enrollment/assisted
- Consists of the individual and family attributes required for determining eligibility to schemes/programmes

Individual Attributes	Family Attributes	Identifiers
Name	Caste	MGNREGA ID (Public works)
Gender	Income	Labour ID
Date of Birth	Land Holding	SECC ID (Socio-economic database)
Education Level	Location of Residence	Education ID
Occupation	Contact details	Ayushman Bharath ID (Health insurance ID)
Marital Status	Deprivation Status	Pension ID
Parent Details	PHH/NPHH	Housing ID
Disability	Housing Status	Scholarship ID
Income Tax (IT) Payee		Farmer ID

1. Social Registry (contd..)

- Data from the Public Distribution System, key SP programme covering 55 million HHs, used as a base and other registries the integrated with it
 - No survey done dynamic data update
 - Validated data from source systems reliable and authentic

PDS	Birth and Death data
Caste and Income	FRUITS (Farmers database)
Transport	Utilities
SECC (Socio-economic data)	Anganwadi (pre-school education)
Social Security Pensions	Ayushman Bharath Arogya Karnataka (Health insurance)
Housing	Labour
UDID (Disability)	Education
MGNREGA (Public works)	HRMS
IT/PT* (Income/Professional Tax)	GSTIN holder* (Goods and Services Tax)

^{*}Yes/No Response

<u>Kutumba – Social Registry</u>

Family Members & Member Schemes Details

1. LOCATION DETAILS					
District Name :	MYSURU	Taluka Name:	MYSURU	Village Name :	OLA
2. PERSONAL DETAILS					
Name In English:	tha	Date Of Birth :	06/05/2007	Photo:	
Name In Kannada :	 ोंड	Gender:	F	Is BPL:	Yes
Father Name :	ಾಮ	Mother Name :	ಮ್ಮಮ್ಮ	Spouse Name :	
Marital Status :		Mobile No.:		Resident Of Rural Area:	Yes
Aadhar No.:	xxxx-xxxx-3073				

<u>Kutumba – Social Registry</u>

3. FAMILY DETAILS						
Caste:	ಕುರುಬ	Caste Category:	ಪ್ರವರ್ಗ II (ಎ)	Family Income:	16000	
Family Land Extent:						
4. ATTRIBUTE DETAILS						
Caste:	ಕುರುಬ	Caste Category:	ಪ್ರವರ್ಗ II (ಎ)	Income:	16000	
Farmer Category:	Not applicable	Education ID:	2752	Education Level:	Secondary Only	
Disability:	No	Disability ID:	Not applicable	Pension ID:	Not a Pensioner	
Pension Scheme:	Not applicable	Housing ID:	No	Housing Scheme:	Not available	

2. Beneficiary Registry

- Contains details of social protection benefits extended to individual and families
- Integrates benefits received by individual/family across programmes/schemes.

Health	Social Security Pensions
Housing	Scholarships – Pre & Post Matric
Agriculture	Incentives to Milk Pourers
MGNREGA	Labour
COVID Financial Relief	PM Kisan
Social Security Pensions	Matrushree Scheme

<u>Targeted delivery of benefits and services</u>

- · Identify families/individuals who have not received benefits though entitled
- Identify families/individuals who have received benefits
- Identify families/individuals usurping govt benefits.

Data Analytics

- Impact of welfare schemes improvement in socio-economic status, moving out of deprivation parameters
- Income and Poverty Trends Income and Poverty dispersion across state.

Kutumba - Beneficiary Registry

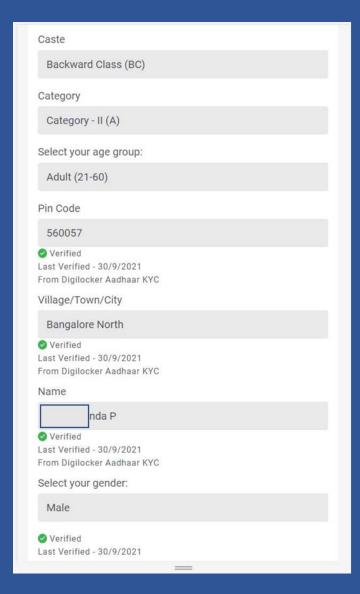
Details of Government Benefits that you have received

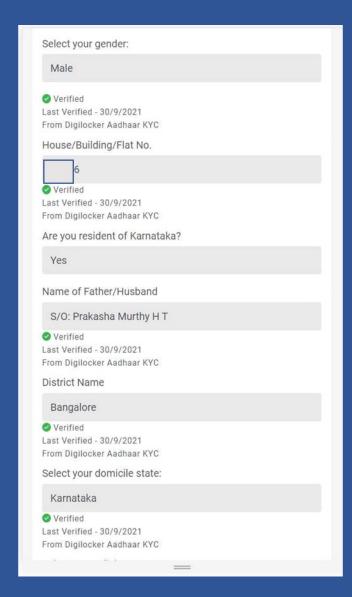
Department Name	Scheme Type	Scheme Name	Scheme Beneficiary ID	Benefieciary Name	Payment Year	Amount Paid
FRUITS	State	Incentives to Fruit Growing Farmers	231	RAJU	2021-2022	Yes
						-
FRUITS	State	Incentives to Fruit Growing Farmers	311	RAJU	2020-2021	Yes
		Incentives to Vegetable Growing				
FRUITS	State	Farmers	281	RAJU	2020-2021	Yes
		Ingrtd Farming in Coconut Prodty Imp				
FRUITS	State	Program	00	RAJU	2018-2019	Yes
FRUITS	Central	National Food security Mission	05534	RAJU	2019-2020	Yes
FRUITS	Central	National Food security Mission	0005534	RAJU	2020-2021	Yes
		Pradhana Mantri Kisan Samman Nidhi				
FRUITS	State	Karnataka	195792	RAJU	2020-2021	Yes
		Pradhana Mantri Kisan Samman Nidhi				
FRUITS	State	Karnataka	195792	RAJU	2021-2022	Yes
		Pradhana Mantri Kisan Samman Nidhi				
FRUITS	State	Karnataka	195792	RAJU	2019-2020	Yes
		Decentrailzed procurement of NFSA				
FRUITS	State	Paddy		RAJU	2020-2021	Yes
		Decentralised procurement under				
FRUITS	State	NFSA Ragi		RAJU	2020-2021	Yes
		Decentralised procurement under				
FRUITS	State	NFSA Ragi		RAJU	2019-2020	Yes
		Financial Assistance for Maize				
FRUITS	State	growers	00005534	RAJU	2020-2021	Yes

3. Suvidha - Scheme Discovery, Eligibility Check & Service Delivery Portal

- Fully automated beneficiary eligibility and entitlement identification process
 - Interface for citizens to apply for schemes/programmes.
 - Uses data from Social Registry of Kutumba to verify eligibility and identify the entitlement of citizens
 - Requirement of document submission for eligibility criteria removed.
 - Only data not available in Social Registry to be submitted by citizen
 - Data submitted by citizen verified by concerned data owner department *not by the department giving the benefit.*
 - Verified data flows back to Social Registry and updated
 - Enables philosophy of *ASK ONLY ONCE*.

Suvidha







4. Payment Platform

- State Direct Benefit Transfer Portal payment platform of Kutumba ecosystem
 - Single platform for all beneficiary based payments.
 - Integrated with
 - National Payments Corporation of India System
 - Khajane –Integrated Financial Management System of Karnataka
 - Public Financial Management System of Govt. of India
 - Supports Aadhaar-Enabled Payment System
 - Enables departments to make payments using Aadhaar, the national foundational ID, as a financial address.

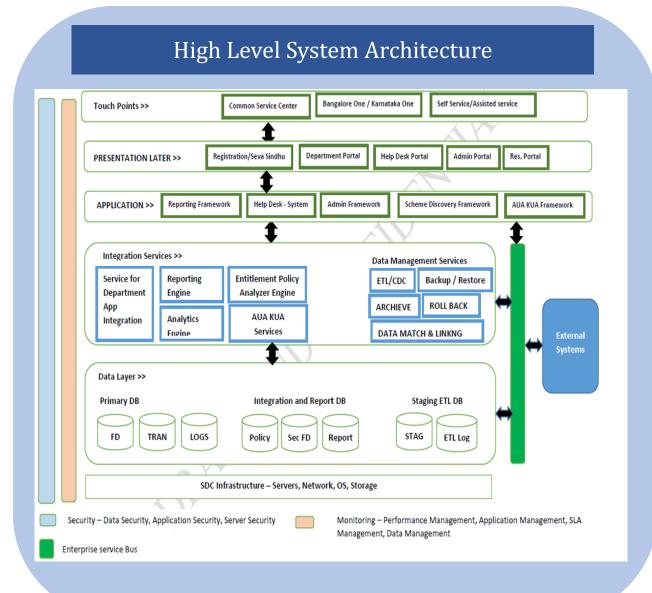


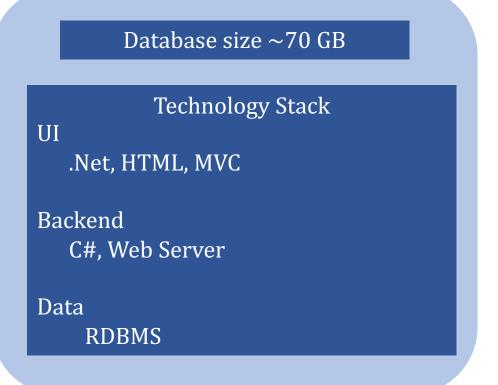
5. Grievance Redress

- Citizen needs to have a recourse to
 - Raise grievance regarding incompleteness of data or incorrect data in Kutumba
 - A mechanism to notify competent authorities about instances of misconduct and failures in the delivery of the promised benefit
- Integrated Public Grievance Redressal System (iPGRS)
 - Centralised platform with online and call centre features
 - Has mapped grievances to Last mile functionary in each department.
 - Specified timelines for Redressal of grievance
 - Grievance closed only on confirmation from the citizen who has raised the same
- Kutumba on boarded on existing iPGRS system for grievance redress



Kutumba – Technical Overview





Interoperability capabilities of Kutumba

Dynamic and Responsive Inclusion/Exclusion

- Integration with attribute source systems
 - Nearly Real time (T+1) update of attributes of residents in Social Registry of Kutumba
- Enables departments to periodically verify eligibility of beneficiaries of recurring schemes
 - Beneficiaries whose family income/land holding has increased beyond the eligibility limit –Ex Pensions
 - Beneficiaries who meet the exclusion criteria Ex PDS
 - Change in Ration Card Status from PHH to NPHH change in insurance coverage.
- Enables departments to remove deceased beneficiaries
 - Kutumba integrated with Birth and Death Registry
 - Kutumba broadcasts deceased data to departments Annual Life
 Certificate/verification not awaited for stopping recurring benefits

Challenges faced and measured adopted



Issues Noticed (1/2)

- ☐ Identity information not available in many critical databases. For e.g.
 - e-Janma Civil Registry
 - ESCOMS Utilities
 - Vahan/Sarathi Road Transport
- ☐ Inconsistency in demographic information for same person
 - Name address of same beneficiary differs across different databases
- ☐ Contradiction of data across departments
 - like DOB, Name, Non-authenticated Aadhaar

Issues Noticed (2/2)

- ☐ Data Quality Issues
 - Incomplete data Non availability of data for all records
 - E.g., RCH ID (Reproductive and Child Health ID) is required in Sneha (malnutrition management solution) Only 25% of the records have RCH ID
 - Invalid Data
 - E.g., Mobile numbers having 9 digits, starting with 1 to 5 numbers; DoB indicated as 01-01-1900
 or dd-mmm-yyy (24 Sep 197)
 - o Gender field indicated as 0, Null, other junk values
 - De-duplication issues unique records found duplicated
 - E.g., Same # of UID for multiple records
 - Non-standardized data format
 - DoB format differs (dd-mm-yy/ mm-yy/ dd-mmm-yyyy)
- ☐ Impact on data sharing

Measures Adopted to address/mitigate issues

#	Issue	Measure adopted
1.	Identity information not available in many critical databases	 Government notifies IT systems to capture and seed Kutumba ID. Kutumba ID captured at the time of birth/death registration.
2.	Inconsistency in demographic information for same person	 Address in FCS is considered as the address of the citizen. Surveys utilised to validate the address of the citizens.
3.	Contradiction of data across department	 The source data base for a given data field is identified and the data is taken as the single source of truth. For example Caste and Income data is from the Nadakacheri system of Revenue Department. Confidence level by checking the consistency of data across databases. For eg: Gender consistency across databases.

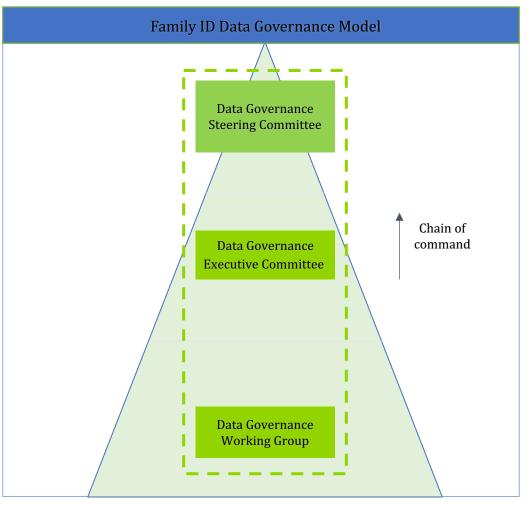
Measures Adopted to address/mitigate issues

#	Issue	Measure adopted
4.	Data Quality Issues	 Data Profiling of each database, along with the concerned department officials, carried out. Anomalies identified reported to dept. along with suggested measures to address the issues.
5.	Impact on data sharing	 Departments requested to address quality issues. Transitive matching process adopted to link records. (A → B; B → C and therefore A → C)

A formal "Data Governance" program launched with constituents from various departments that either produces or consumes citizen/resident/family data

Data Governance Structure in Karnataka

The Data Governance Structure involves a set of decision-making bodies that are aligned with Technology, Center of eGovernance and various contributing Departments. Key responsibilities of these data governance bodies span all decisions from strategic to tactical to administrative to operational.



- 1. Data Governance Steering Committee is an appellate body to Data Governance Execution Committee includes Senior leadership who will be responsible for policy and government level decisions and will also address challenges and concerns raised/reported by Data Governance Execution Committee
- 2. Data Governance Executive Committee is an appellate body to Data Governance Working Group is involved in decisioning around Data usage, Data Ownership, changes to data structures, impact etc. handles Data issues and concerns raised/reported by the Data Governance Working Group
- 3. Data Governance Working Group is an operational committee comprises of Data Stewards, Data Custodians and other members who engages in analysis, data quality profiling and reporting team, project leaders from various contributing departments, data movement, querying and remediation of data in scope

Data Governance - Council/Committee & Working Group

Data Governance Steering Committee

- a. Chairperson Additional Chief Secretary to GoK
- b. Permanent Members
 - i. ACS/Principle Secretaries/Secretaries
 - 1. DPAR (e-Governance)
 - 2. Department of Food and Civil Supplies
 - 3. Department of Economics and Statistics
 - 4. Directorate of Social Security Pension
 - 5. Department of Agriculture
 - 6. Department of Health
 - 7. Department of Horticulture
 - 8. Department of Revenue
 - 9. Department of RDPR
- c. CEO CeG Member Secretary
- d. Members by Invitation
 - i. Chief Data Officer/Project Director, Family ID [Permanent Invitee]
 - ii. Advisory Consultants (where applicable)

Data Governance Executive Committee,

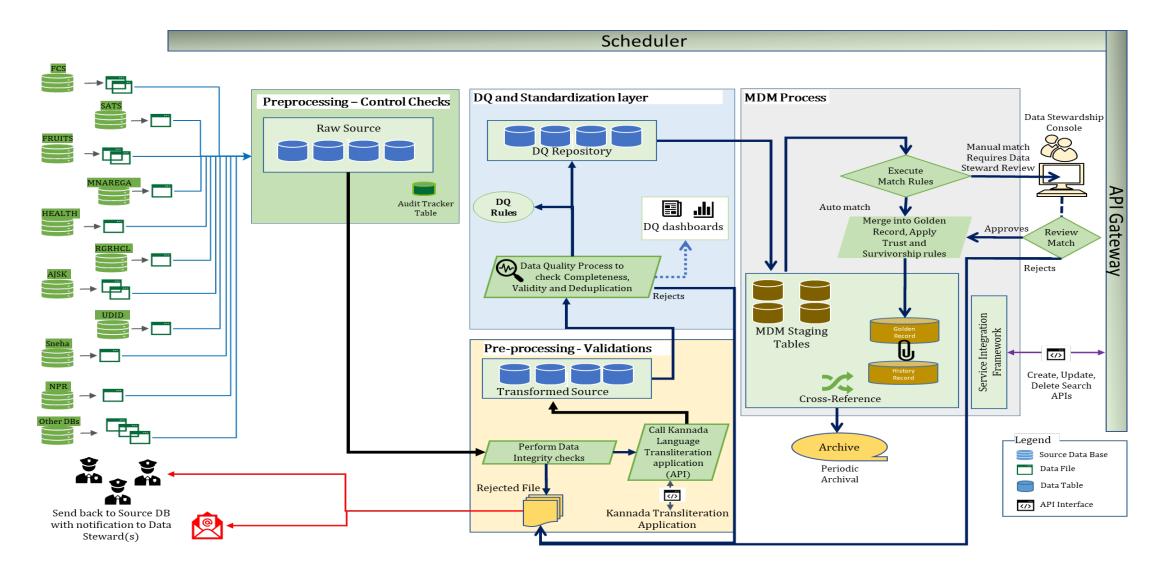
- a. Chairperson Secretary, DPAR (e-Gov)
- b. Permanent Members
 - i. Chief Executive Officer, Centre for e-Governance
 - ii. Authorized representatives from Contributing Departments
 - 1. Department of Food and Civil Supplies
 - 2. Department of Economics and Statistics
 - 3. Directorate of Social Security Pension
 - 4. Department of Agriculture
 - 5. Department of Health
 - 6. Department of Horticulture
 - 7. Department of Revenue
 - 8. Department of RDPR
- c. Chief Data Officer, CeG Member Secretary
- d. Members by Invitation
 - i. Technical Director of concerned project
 - ii. Data Owners from any other department or application
 - iii. Program/Project Leaders as applicable
 - iv. Advisory Consultants (if applicable)

Data Governance Working Group

- a. Chairperson -Head of the Department
- b. Permanent Members
 - i. Senior Program Manager
 - ii. Senior Technical Manager
 - iii. NIC Technical Team Lead
 - iv. Data Stewards & Data Custodians from Contributing Source Systems
- c. Project Director Member Secretary
- c. Members by Invitation -
 - Any other member who has a role or impact related to the project and can contribute to discussions around quality and content of data
 - ii. Technical Consultants (if applicable)

Data management in Kutumba

Data management in Kutumba



Data standards

- Data Dictionary an data dictionary used by DBMS, automatically updated.
- Data Dictionary defined for each contributing and consuming departments.
 - Based on the minimal data requirement policy.
 - Initial Onboarding process, Meta Data is shared with each department.
 - Department raises request, placed before Data Governance Working Group for approval.
 - Post approval for each system, client code created only specific data shared.
- Regular review by Security, Audit and Governance Committees ensure standards are maintained and updated on regular basis.

Defining and managing interoperability interfaces

- Offline ETL Process
 - Connecting systems share the data in a specified location and process reads the data and processes
- <u>Online Interfaces</u>
 - Connecting systems directly integrated with Kutumba ecosystem through API (Forward Integration and Reverse Integration)
 - API used for requesting and sharing the data
- Batch Mode Interfaces
 - Asynchronous request and response method defined for the data exchange using CRON JOB's

Data exchange protocols

- Data management manual defined
 - Data integrity and confidentiality
 - Encryption, Check digit.
- Different kind of data integration approaches used
 - Web Services
 - Point to Point
 - ESB
 - Broadcast
- Access control protocol for data exchange through centralised API (Kutumba), decentralised at each department (Department specific data)
- Each requesting department provided with unique security key and client code for data exchange

Data security and privacy

Data Security

- Periodic security testing of applications,
- Hosting of the database in Militarized Zone in State Data Centre which is ISO 270001 certified
- Activities monitored under Security Operations Centre and Database Activity Monitoring tool
- Adoption of Industry best practices such as HSM, Key Secure Vault for encryption.
- APIs enabled with payload encryption and hashed checks

Data Privacy

- 7 principles of Privacy by Design adopted.
 - principles of purpose specification, data minimization, collection limitation and retention policy
- Design and architecture aligned to the rights of Data Principal as envisaged in the Personal Data Protection Bill and IT Act 2000.
- Data anonymization as a concept implemented.

Key milestones achieved due to interoperability

Key milestones achieved due to interoperability

1. Improved User (Citizen) Experience

- 1. Improvement in user experience and reduced burden on citizens through simplification of the Government processes
 - Kutumba ID input by resident required information auto fetched from Kutumba in electronic form
 - Nil or lowered document submission
 - Used in citizen facing applications
 - RCH, SATS, Ashraya, eJanma, Seva Sindhu
- 2. Kutumba enabled on Single Sign On ensures ease of access to Citizens
 - Aadhaar based Single Sign On
 - Citizen self service portal
 - See their data and edit the same or make request for change
 - Self registration of new families in KUTUMBA and obtain KUTUMBA ID



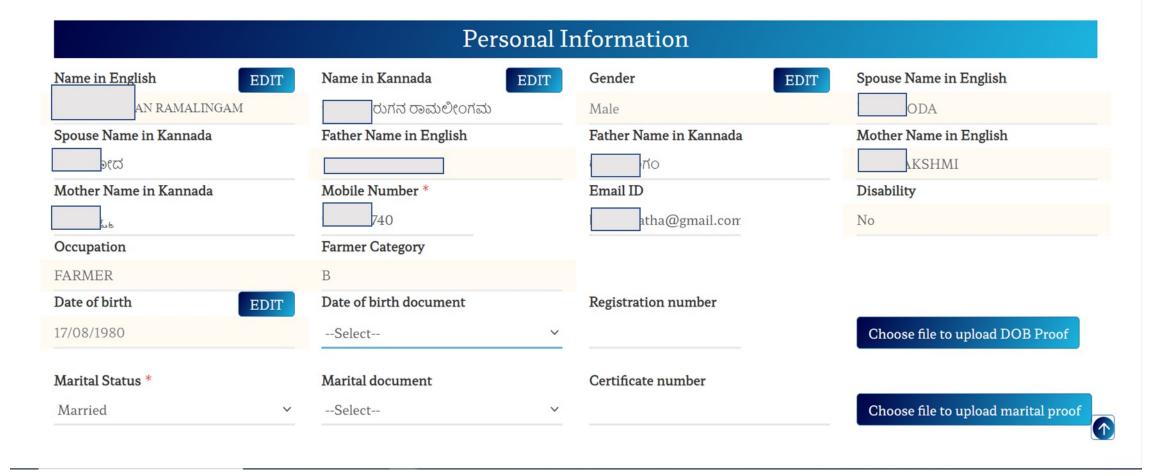


Member Name in English UGAN GAM	Member Name in Kan	nada eKYC Sta	Male		**** *** 9246	Member Photo	View
Adults							
Member Name in English	Member Name in Kannada	eKYC Status	Gender	Mobile Number	Member Aadhar Number	Member Photo	
ODA	ೀದ	Y	Female	934)	**** *** 3614		View
Minor							
Member Name in English	Member Name in Kannada	eKYC Status	Gender	Mobile Number	Member Aadhar Number	Member Photo	
SHA В	ಬಿ	Y	Female	934	**** **** 9803		View

8

View Family Members





Family Details				
Your Caste *	Your Caste Category *	RD number given by Revenue dept GOK for your Caste	Expiry Date *	
ಗೊಲ್ಲ	ಪ್ರವರ್ಗ 1	021091	01/06/2025	
Family Agriculture Land Extent	Family Income *	RD number given by Revenue dept GOK for your Income	Expiry Date *	
5.23	11000	027879	01/06/2025	

 $[\]Box$ I confirm that I have verified and found the above details to be correct.

Othe	er Details	
Family Member ID	Farmer ID given to you by GOK under fruits	
631	0011238	
Disability ID given to you by GOI	Your Housing ID given to you by Housing Department	Your pension ID given by Revenue Dept
Not Applicable	Not Applicable	Not Applicable
	Family Member ID 631 Disability ID given to you by GOI	fruits 631 0011238 Disability ID given to you by GOI Your Housing ID given to you by Housing Department

Your address information in Kutumba

*** Please fill the missing address information

				rease in the inissing addres	3 Illioi illacioi			
Current Address	Permanent Address							
Country		State	District	Taluka	Taluka			
INDIA		KARNATAKA	BENGALURU	Bengaluru East	~			
House Number		Care Of	Street	Locality				
		ALINGAM	, 1ST CROSS	AM				
Land mark		Village/Town/City	Pincode					
	NESHWARI T	M	21					

 \square Yes, My current address and Permanent Address both are same.

Get Address from Aadhar

Details of Government Benefits that you have received

Department Name	Scheme Type	Scheme Name	Scheme Beneficiary ID	Beneficiary Name	Payment Year	Amount Paid
Department of Animal Husbandry & Veterinary Services	State	MILK INCENTIVES TO MILK PRODUCERS	037	IGAN AM	2020-2021	Yes
Department of Animal Husbandry & Veterinary Services	State	MILK INCENTIVES TO MILK PRODUCERS	037	IGAN AM	2021-2022	Yes

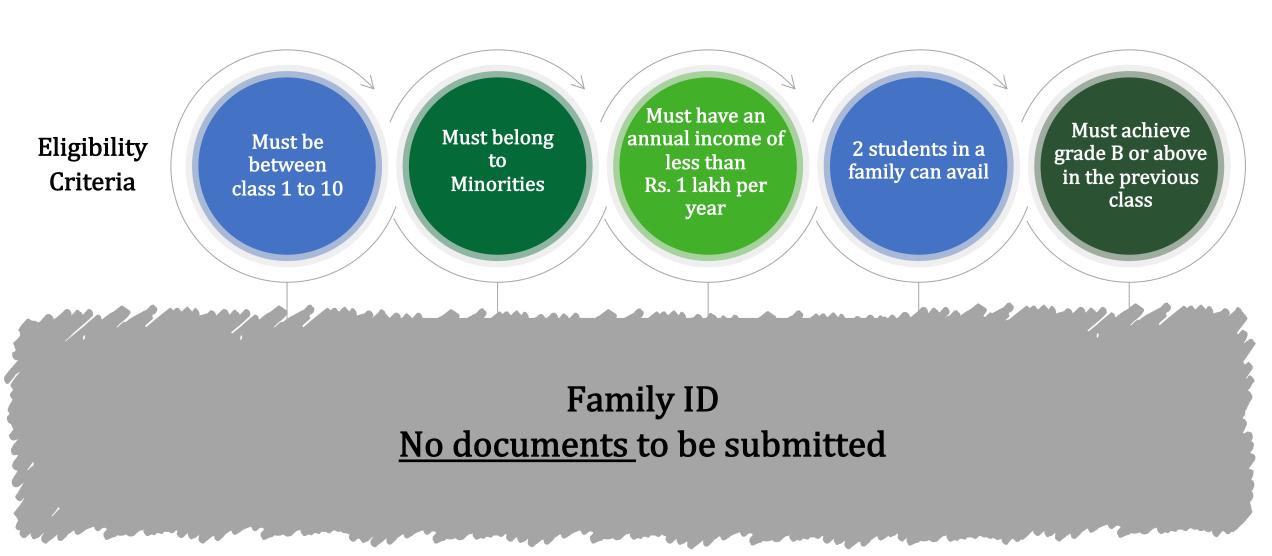
Submit Close

Key milestones achieved due to interoperability – contd...

- 2. Quick delivery of services to citizens
 - 1. Application processing time reduced
 - Eligibility and Entitlement status along with verified data quicker decision by officials
 - Reduced drudgery of government officials to process applications
 - No manual verification of documents
 - Ineligible applications filtered out reduction in number of applications to be processed
 - 2. Responsive and Dynamic inclusion into beneficiary schemes made possible
 - Citizens do not have to apply
 - Suo-moto identification of beneficiaries for old age pensions.
 - Suo-moto identification of eligible students for scholarships.

Benefits to Citizens

Pre-matric Scholarship to students of Minority communities



Key milestones achieved due to interoperability – contd...

3. Increase in coverage

- 1. Suo-moto scholarships delivered to students on Entitlement basis
 - 0.5 million eligible children of farmers
 - 0.1 million eligible children of construction workers
- 2. Post Matric scholarships
 - 0.9 million eligible students identified in 2021-22 as against 0.47 million students in 2020-21.
- 3. Social Security Pensions
 - 0.67 million likely eligible beneficiaries identified for old age pensions
- 4. Crop loss payment to 1.05 million farmers (by FRUITS)
 - Maize, vegetable, fruits and flower growers

Key milestones achieved due to interoperability – contd...

4. Identification of ineligible/deceased beneficiaries

- 1. 0.3 million ineligible PHH Ration card holders
 - exclusion criteria IT payees, Government employees, Family Income above Rs.1.20 lakh, Households with > 3 hectares land in rural areas, PT payees
 - Connected with IT, GST and PT systems Yes/No response for IT payee, GSTIN holder, PT payee
 - Using data from AJSK (caste and income data), FRUITS (farmer database) and HRMS

2. 0.14 million Social Security Pensioners

- exclusion criteria income higher than limit specified, large land holding, more than one pension, under age for Old Age Pensions
 - Using data from AJSK, FRUITS and demographic data in FCS

3. 0.55 million deceased beneficiaries removed

- 0.45 million deceased members in Ration Cards
- 0.10 million deceased Social Security Pensioners

Thank You