

**SOCIAL IMPACT ASSESSMENT STUDY
DRAFT REPORT**

**LAND ACQUISITION FOR LIQUID PROPULSION
SYSTEMS CENTRE (LPSC) FOR ISRO AT
VALIAMALA, THIRUVANANTHAPURAM
DISTRICT**

12 December 2018

Requiring Body



Liquid Propulsion Systems Centre (LPSC)
ISRO, Department of Space
Valiyamala PO
Thiruvananthapuram - 695 547

SIA Unit



Rajagiri College of Social Sciences
Rajagiri P.O Kalamassery
Pin: 683104
Ph: 0484 2911330 – 332/2550785
rossrajagiri@gmail.com

CONTENTS

CHAPTER 1 - EXECUTIVE SUMMARY

- 1.1 Project and Public Purpose
- 1.2 Location
- 1.3 Size and Attributes of Land Acquisition
- 1.4 Alternatives Considered
- 1.5 Social Impacts
- 1.6 Mitigation Measures

CHAPTER 2 - DETAILED PROJECT DESCRIPTION

- 2.1. Background of the Project
- 2.2. Rationale for the Project
- 2.3. Details of Project –Size, Location, Production Targets, Costs and Risks
- 2.4. Examination of Alternatives
- 2.5. Phases of the Project Construction
- 2.6. Core Design Features and Size and Type of Facilities
- 2.7. Need For Ancillary Infrastructural Facilities
- 2.8. Work force requirements
- 2.9. Details of Studies Conducted Earlier
- 2.10 Applicable Legislations and Policies

CHAPTER 3 – TEAM COMPOSITION, STUDY APPROACH AND METHODOLOGY

- 3.1 Background
- 3.2 Methodology and Tools Used
- 3.3 Details of the Study Team

CHAPTER 4 - LAND ASSESSMENT

- 4.1 Entire area of impact under the influence of the project
- 4.2 Land Requirement for the Project
- 4.3 Use of Public Land Affected by the Project
- 4.4. Land Already Purchased
- 4.5 Nature and Present Use of the Affected Land
- 4.6 Ownership Pattern
- 4.7 Land Price and Recent Changes in Ownership

CHAPTER 5 - ESTIMATION AND ENUMERATION

- 5.1 Affected Families of the Project
- 5.2 Livelihood Affected Families
- 5.3 Detailed Mitigation Plan Stated by the Requiring Body
- 5.4 Activities Carries out for Mitigation

CHAPTER 6 – SOCIAL IMPACT MANAGEMENT PLAN INSTITUTIONAL FRAMEWORK

- 6.1 Institutional Structures and Key Persons

CHAPTER 7 - SOCIAL IMPACT MANAGEMENT BUDGET AND FINANCING OF MITIGATION PLAN

- 7.1 Costs of all Resettlement and Rehabilitation Costs
- 7.2 Annual Budget and Plan of Action
- 7.3 Funding Sources with Break up

CHAPTER 8 – SOCIAL IMPACT MANAGEMENT PLAN MONITORING AND EVALUATION

- 8.1 Key Monitoring and Evaluative Indicators
- 8.2. Reporting Mechanisms and Monitoring Roles
- 8.3. Plan for Independent Evaluation

List of Tables

Table 1.3.1. Extent of Land Acquisition

Table 1.5.1. Analysis of various possible social impacts of the project

Table 2.1.1. Building/Facilities at Valiyamala-Details

Table 2.6.1. Details of facilities/buildings proposed in additional land

Table 3.3.1. Details of the Study Team

Table 4.1.1. Details of Owners whose Housing Properties are Affected

Table 4.1.2 Possible Impacts of the Project

Table 4.1.3. Impact on Productive Assets

Table 5.1.1. Religion of the Affected families

Table 5.1.2. Caste of the Affected families

Table 5.1.3. Type of Ration Card

Table 5.1.4. Family Pattern

List of Figures

Figure 3.1 Approach And Methodology For SIA

Figure 4.5.1 Type of Land

Figure 4.5.2 Use of Land

CHAPTER 1

EXECUTIVE SUMMARY

1.1. Project and Public Purpose

Liquid Propulsion Systems Centre (LPSC) is the lead Centre for development and realization of earth-to-orbit advanced propulsion stages for Launch Vehicles and also the in-space propulsion systems for Spacecrafts functioning under Indian Space Research Organization (ISRO). LPSC activities and facilities are spread across its two campuses namely, LPSC, Valiyamala, Thiruvananthapuram and LPSC, Bangalore, Karnataka.

The proposed project “Land Acquisition for Liquid Propulsion Systems Centre (LPSC) for ISRO at Valiyamala, Thiruvananthapuram District “is for public purpose. Acquisition of additional land of about 50 acres adjacent to present LPSC Valiyamala Campus is essential to develop the activities of the LPSC to meet the programmatic demands of ISRO in future. The development focused on the three main areas: (1) Development of propulsion systems for launchers with higher payload capacity (2) Development of advanced technologies for launch vehicles & satellites (3) Delivery of propulsion systems to meet enhanced annual launch rate.

As per the Kerala Gazette (Extra Ordinary) No.2277 dated September 4, 2018 and Govt. order No.56/2018/RD dated 03-9-2018, 50 acres land is proposed to be acquired for the development of Liquid Propulsion Systems Centre (LPSC) for ISRO at Valiyamala, Thiruvananthapuram District.

1.2. Location

Village	:	Karippur
Taluk	:	Nedumangad
District	:	Thiruvananthapuram

1.3. Size and Attributes of Land Acquisition

Acquisition of about 50 acres land adjacent to LPSC, Valiyamala Campus in the Karippur Village in Nedumangad is required for the development of Liquid Propulsion Systems Centre (LPSC) for ISRO. The land is both wet land and dry land category belongs to 141 survey numbers and presently used for agricultural purpose. The resurvey numbers and approximate extent of land to be acquired is explained below:

Table 1.3.1 Extent of Land Acquisition

Sl. No.	Resurvey No/Subdivision No	Approximate Extent of acquisition in Hectors
1.	30/13	2.2
2.	30/14	2.15
3.	30/16	1.15
4.	30/17	1.35
5.	28/3,7,9,10,11	35.6,33,11.7,0.9,5.7
6.	28/20,24	1.2,1.8
7.	28/22	0.4
8.	31/2	1.4
9.	30/10	14.75
10.	30/18,21	1.05,2.25
11.	30/22-1	12.15
12.	30/22	12.15
13.	28/12	1.5
14.	28/13	3.5
15.	28/23	1.7
16.	29/7	9
17.	29/8	28.5
18.	29/10	26
19.	29/11	3.3
20.	29/12	17.3
21.	29/12-1	17.3
22.	29/12-2,12-4	17.3,17.3
23.	29/12-3	17.3
24.	29/12-5	17.3
25.	29/13	12.7
26.	29/14	31
27.	29/15	32.4
28.	29/15	32.4
29.	31/4	8
30.	31/5,31/13	16.1,2.4

31.	31/5-1	16.1
32.	31/6	23.2
33.	31/6	23.2
34.	31/6,31/10	23.2,5.4
35.	30/2	15.25
36.	30/3	16.15
37.	30/11	4.2
38.	30/19	1.05
39.	30/20	2.15
40.	31/3,28/5,31/15	6.2,6.8,5.1
41.	28/8	2
42.	28/14	1.2
43.	28/15,29/4	1.2,7.1
44.	28/16,29/2,29/3	5,11,45.4
45.	28/21	10.2
46.	29/5	4.2
47.	31/1	7.6
48.	31/7	12.3
49.	31/7-1,31/17	12.3,3.6
50.	31/8,31/16	8,31.4
51.	31/9	5.6
52.	31/14	5.1
53.	31/18	21.25
54.	248/5	
55.	29/3	
56.	29/6	
57.	29/10	
58.	29/11	
59.	29/12	
60.	248/7	30.4
61.	248/9	24.8
62.	248/10	25.2
63.	248/13	9.6
64.	248/7	30.4
65.	250/23,269/25,271/5	18.5,7,3.05
66.	250/23	18.5
67.	269/15	30.6
68.	269/15	30.6
69.	269/15,25	30.6,7
70.	270/5	29.25
71.	270/4	1.25
72.	270/16	20.2
73.	269/22	1.3
74.	245/7	4.2

75.	245/8	39
76.	245/9	91.6
77.	245/25	
78.	245/18,20,22,23	3.95,28.5,0.55,51
79.	247/1	04.18.40
80.	247/7,247/8	
81.	247/2	
82.	247/6	
83.	247/3,9,10	04.18.40
84.	247/12,5	04.18.40
85.	247/13	
86.	247/14	
87.	247/15	
88.	247/4,11	
89.	248/1,5,2,249/7,2	01.02.00,01.03.20,22.8,23.45,9.1
90.	248/3,5,249/3,9	9.1,01.3.20,7.85,23.5
91.	249/6	39.4
92.	248/8	25.45
93.	249/10	12
94.	249/16	24.5
95.	249/2,17	65.8,65.8
96.	249/10	12
97.	250/107,271/7,270/17	30.5,4.05,2.3
98.	270/6	14.7
99.	245/6	19.5
100.	245/19	41
101.	245/21	2.4
102.	245/17	9
103.	245/17	
104.	245/5	5.5
105.	248/5	1.03.20
106.	248/6	1.22
107.	248/11	4.8
108.	248/12	16.8
109.	248/12-1	16.8
110.	248/7	30.4
111.	249/1	6.45
112.	249/2	65.8
113.	249/14,244/3,2	10.1,03.09.60
114.	249/15	10.7
115.	249/18	65.8
116.	249/16	24.5
117.	249/16	10.8
118.	270/19	5.5

119.	270/20	5.25
120.	270/18	7.25
121.	270/6,271/25	13.2,12.8
122.	271/7	4.05
123.	271/8	3.5
124.	271/9,11,15,17	3.05,5.8,7.35,3.85
125.	271/10,12,20,270/14	6.25,2.55,2,5.1
126.	271/19	1.9
127.	271/22	3.85
128.	271/30	4.8
129.	271/4	6.4
130.	271/26	7.75
131.	244/1	18.8
132.	244/2	4.3
133.	244/3	03.09.60
134.	244/3-1,244/4,244/4	03.09.60,14.98,14.95
135.	244/5	03.09.60
136.	244/6	03.09.60
137.	244/7,244/7-1	
138.	244/8	
139.	249/4	8.4
140.	249/11,13,250/1	2.65,6.25,5.38
141.	250/2	5.3

1.4 Alternatives considered

Since the required land is proposed to be acquired is near to the present Liquid Propulsion Systems Centre (LPSC) for ISRO, Valiyamala Campus, Thiruvananthapuram District, thus no other alternatives are to be considered.

1.5 Social Impact

124 families responded during the survey and other 17 families were not available to collect information. With the survey, it is clear that housing properties of 32 families are affected and 115 families shared that their livelihood may be affected due to the project.

Table 1.5.1. Analysis of the various possible social impacts of the project

SI. No	Type of Impact	Status
1	Loss of Land	141 families will lose their land
2	Loss of Built-up Property	32 families are residing near to Valiyamala Campus and their houses are affected.
3	Loss of Trees	Coconut trees : 913 Areacanut : 322 Tamarind : 9 Seethapazham : 4 Rubber : 1128 Coco : 8 Kappi : 16 Pineapple : 586 Pepper : 136 Pappaya : 22 Guava : 89 Mahagony : 979 Teak : 35 Neem : 22 Plumber : 1020 Kaitha : 459 Mango tree : 306 Etti : 2 Anjili : 211 Perumaram : 3 Aryavep : 4 Jack fruit : 149
4	Loss of Livelihood	115 families are depending on agriculture and their livelihood will be affected.

Note: The above data is arrived as per the information provided by the respondents during the Survey. Supporting documents need to be verified during Land acquisition.

1.6. Mitigation Measures

It appears from the analysis and overview of the Act that the provisions of compensation for land acquisition under RTFCTLARR Act, 2013 will be sufficient to mitigate the impact. Speedy disbursement of compensation and necessary arrangements as per the RTFCTLARR Act, 2013 for rehabilitation is preferred.

CHAPTER 2

DETAILED PROJECT DESCRIPTION

2.1. Background of the Project

Liquid Propulsion Systems Centre (LPSC) is the lead Centre for development and realization of earth-to-orbit advanced propulsion stages for Launch Vehicles and also the in-space propulsion systems for Spacecrafts functioning under Indian Space Research Organization (ISRO). LPSC activities and facilities are spread across its two campuses namely, LPSC, Valiyamala, Thiruvananthapuram and LPSC, Bangalore, Karnataka. LPSC Valiyamala is the Centre Headquarters, responsible for R & D, System Design/Engineering and Project Management functions. LPSC is to design, development and realization of liquid propulsion stages for ISRO's Launch Vehicles. Development of fluid control valves, transducers, propellant management devices for vacuum conditions and other key components of liquid propulsion systems are also under the purview of this centre.

The proposed project is for the development of (1) Technical facilities (2) Office buildings & support facilities. ISRO also planned for the development of - Combustion Research Facility, Bonded Store for Engine & Stage Hardware, Proto & Subsystem Pre-Assembly Facility, Integrated Cryogenic Components & Modules Assembly & Test Facility (ICMAT), Integrated Assembly & Test Facility for Space Craft Thrusters (IATF-ST) and Electric Propulsion System Development Facilities etc. The total area of existing LPSC Valiyamala Campus along with MVIT entity is around 260.50 acres. The planning for the above said developments can only be possible by acquiring an additional land of 50 acres contiguous to present LPSC, Valiyamala Campus. Details of buildings/facilities existing in Valiyamala Campus are given below:

Table 2.1.1 Building/Facilities at Valiyamala-Details

SL. No.	Building/Facility Name	Area (in sq.m)
1)	Existing building/facilities (including MVIT)	88.262
2)	Security tracks, internal roads and parking area	95.350
3)	Buildings/facilities under construction	15.908
4)	Buildings/facilities under planning	8.055
5)	Buildings/facilities proposed	29.746
	Total	2,37,321

As per the Kerala Gazette (Extra Ordinary) No.2277 dated September 4, 2018 and Govt. order No.56/2018/RD dated 03-9-2018, 50 acres land is proposed to be acquired for the development of Liquid Propulsion Systems Centre (LPSC) for ISRO at Valiyamala, Thiruvananthapuram District.

2.2. Rationale for Project

As our country has a rapid growth in technology and facilities, changes to support them are fundamental. The proposed project of land acquisition for Liquid Propulsion Systems Centre (LPSC) for ISRO at Valiyamala, Thiruvananthapuram district is to bring together the nation's demand of improved communication requirements, earth observation, navigation and scientific missions. Hence the additional land acquisition for LPSC for ISRO at Valiyamala is closely linked with development of nation. Thus the proposed project shall be considered as a public purpose as per Section 2 of RTFCTLARR Act, 2013 (30 of 2013).

2.3. Details of Project - size, Location, Production Targets, Cost and Risks

50 acres land contiguous to the present LPSC, Valiyamala Campus is required for the development of Liquid Propulsion Systems Centre (LPSC) for ISRO. The affected area belongs to Karippur Village in Nedumangad, Thiruvananthapuram district.

2.4. Examination of Alternatives

Since the required land is proposed to be acquired is near to the present Liquid Propulsion Systems Centre (LPSC) for ISRO, Valiyamala Campus, Thiruvananthapuram District, thus no other alternatives are to be considered.

2.5. Phases of the Project Construction

The project construction is expected to complete in single phase with a period of 2 to 4years.

2.6. Core design Features and Size and Type of Facilities:

Details of the proposed project:

The establishments of planned requirements are mainly categorized into (1) Production facilities (2) Research and development facilities (3) Support facilities. The list of facilities planned and approximate additional area required are given below:

Table 2.6.1: Details of facilities/buildings proposed in additional land

SI No.	Facilities	Area (in Sq.m)
Production Facilities		
1)	Industry Run Satellite Thrusters Production Facility	2600
2)	Industry Run Earth Storable Components Production Facility	4600
3)	Industry Run Cryogenic Components Production Facility	2300
4)	Industry Run Semi Cryogenic Components Production Facility	2100
5)	Industry Run Control Electronics & Electric Propulsion Production Facility	3500
6)	Special Fabrication Facility	3000
7)	Expansion Of Integration Facilities For Engine & Stage Systems At LPSC-V	3000
8)	Health Verification Test Facility (HVTF)	2000
9)	Hardware Storage	5000
SUB TOTAL		28100

SI No.	Facilities	Area (in Sq.m)
R & D Facilities		
1)	Sea Level Hot Test Facility For Engines Up To 1ton Thrust In Valiyamala (Including Safety Zone)	45260
2)	Proto Engine Assembly Lab	2000
3)	Establishment Of Cryogenic Systems Development Lab	4200
4)	Establishment Of Tribology Lab For The Developments Of Bearings And Dynamic Seals	500
5)	Nozzle Flow Simulation Facility	400
6)	Test Facility For Combustion And Heat Transfer Studies	1100
7)	Water Flow Test Facility (WFTF)	400
	SUB TOTAL	53860
	TOTAL	81960

2.7. Need for Ancillary Infrastructural Facilities

The additional supporting infrastructure facilities like office space, transport, canteen, fire & safety, medical services etc are to be planned further. Also these additional supporting infrastructure facilities are to be considered for the land requirement.

2.8. Work Force Requirements:

The work force requirements are not yet assessed.

2.10 Applicable Legislations and Policies

The applicable laws on land acquisition, rehabilitation and resettlement for the proposed Project are:

- The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013
- Government of Kerala - Revenue Department -State Policy for Compensation and Transparency in Land Acquisition
- Right to Information Act, 2005

CHAPTER 3 TEAM COMPOSITION, STUDY APPROACH AND METHODOLOGY

3.1 Background

As per the Notification No. K13-2456/17 dated 05.10.2018, Thiruvananthapuram District Administration has selected RAJAGIRI outREACH, as the SIA Unit to study the Social Impact Assessment of the land acquisition for Liquid Propulsion Systems Centre (LPSC) for ISRO at Valiyamala, Thiruvananthapuram District.

The objective of Social Impact Assessment (SIA) is to enumerate affected land and structures, affected families and persons, to identify social impacts, and to prepare Social Impact Management Plan (SIMP). In order to capture data for the present exercise, both primary as well as secondary sources were systematically tapped. As a part of SIA, census socio-economic survey has been conducted by experienced members of SIA Unit in the Valiyamala side of the proposed Liquid Propulsion Systems Centre (LPSC) for ISRO to list out the favorable and adverse impacts of the project.

3.2 Methodology and Tools Used

Before preparing the Draft SIA study report the study team acquired maximum information about the project with the support of requiring body. The team visited the affected area many times and studied the socio-economic background of the affected families. Various impacts of land acquisition were assessed in detail. Legal framework for land acquisition and compensation as per RTFCTLARR Act 2013 were also studied. Various steps taken for the study are as follows:

- Study of relevant documents, reports and project alignment drawing.
- Site visits and information dissemination about the project
- Socio-economic survey and enumeration of affected properties
- Analysis of socio-economic survey data
- Community/Public Consultation (Public Hearing)

Socio Economic Survey

Before the actual household Socio Economic Survey, visits have been done to identify the properties that were likely to be affected by the project with the support of Revenue Department staff (Special Tahsildar (LA) office) and alignment drawing. An interview schedule was prepared on the basis of the preliminary site visit and it was pre-tested. The survey was conducted through door-to-door personal interviews. The details of affected families, possession of legal documents (if any, towards the claim of property), data related to social profile, occupation, source of income, family expenditure, self employment activities, employment pattern were collected through this interview. Most part of the interview schedule has been pre-coded except those reflecting the opinion and views of PAFs, which have been left open-ended. Before filling the questionnaires, the affected families were asked to produce the necessary documents as proof of their ownership on property and documents like- Aadhar Card, Ration Card etc. were also verified.

Public Hearing:

As per Form 5 Rule 14 (1) of the RTFCTLARR Act, 2013, a public/community consultation (Public Hearing) is scheduled on 15th December, 2018 at 11.00 AM at Mallambarakonam, Hall near Nithya Stores, the queries, clarifications and remarks at the meeting would be incorporated in the final report.

Process and Schedule of Activities

05.10.2018	-	Government of Kerala, entrusted RAJAGIRI outREACH to conduct the SIA study
04.09.2018	-	Publication of Kerala Gazette notification
October 2018	-	Preliminary visit to the affected area
October 2018	-	Data Collection
01.12.2018	-	Notification for public hearing
15.12.2018	-	Public hearing & Draft Report submission

FIGURE 3.1
APPROACH AND METHODOLOGY FOR SIA

Phase 1
PRE-SURVEY ACTIVITIES AND SURVEY OF PAFs

- Discussion with officials of concerned departments
- Pretest of the questionnaire
- Training the Field Staff
- One to one household interviews
- Public consultation

Phase 2
POST SURVEY ACTIVITIES & REPORT PREPARATION

- Data tabulation and analysis plan
- Data coding and entry
- Finalization of SIA report structure
- Analysis of survey results
- Prepare and submission of draft SIA report
- Organizing Public Hearing
- Consultation on SIA findings with affected people, civil societies
- Sharing of concerns by stakeholders
- Review & comments from concerned officials
- Incorporation of comments and submission of the final SIA report

3.3 Details of the Study Team

The study team is headed by the Project Director, RAJAGIRI outREACH, who is the Chairperson of SIA Unit. A team of 9 members having experience in conducting Social Impact Assessment Study and Socio Economic Surveys were assigned for field level data collection, monitoring of data collection and co-ordination of the study. Representatives from Revenue Department supported the investigators to identify the affected families. Details of the study team are mentioning in the table below:

Table 3.3.1. Details of the Study Team

Sl.No	Name	Qualification and Designation	Experience
1.	Meena Kuruvilla	MSW Consultant SIA	30 years in development sector
2.	Maria Tency.V.S	MA, DSS, Research Associate	27 years in development sector
3.	Ranjith K U	DSS, Research Associate - SIA Unit	23 years in development sector
4.	Biju C.P	BA - Research Associate	23 years in development sector
5.	Sujith KU	MA, PGDAHS Research Associate	11 Years experience in development sector
6.	Keerthi Krishnan	MSW Research Associate	1 Year experience in development sector
7.	Jerin J	MSW Research Associate	1 Year experience in development sector
8.	Tony Babu	MSW Research Associate	2 Year experience in development sector
9.	Lenin G	MSW Research Associate	7 Years experience in development sector

CHAPTER 4

LAND ASSESSMENT

Background

A socio-economic survey was carried out in the month of October 2018 covering all affected families. A structured interview schedule was used to collect information on affected property, affected families, livelihood affected families, extent of the impact etc. The major findings and magnitude of impacts are discussed in the following sections.



Information about affected Area

The proposed project “Additional Land Acquisition for Liquid Propulsion Systems Centre (LPSC) for ISRO, Valiyamala is located in Karippur Village, Nedumangad Taluk, Thiruvananthapuram District. The project site is 50 acres of additional land contiguous to the present LPSC, Valiyamala Campus.

4.1 Entire Area of Impact under the Influence of the Project

141 families who own the affected land would be considered as the directly affected families of the project. Details of owners whose housing properties are affected are given below:

Table 4.1.1. Details of Owners whose Housing Properties are Affected

Sl. No.	Owners	Survey No	Impact
1.	Ratheesh R	248/12-1	Terrace, building, well
2.	Rajan	248/12	Sheeted house, toilet, 2- sheeted cattle sheds
3.	Rosamma Muthal Per	248/5	Sheeted house, toilet, well, septic tank, sheeted fire wood shed
4.	Haris	248/6	Sheeted building (2room only)
5.	Thankachi	245/6	Mud shed made of tin sheet, well
6.	Joseph	244/1	Sheeted house(small)
7.	Sebastain	244/2	Tiled house, well
8.	S/O Damodharan - Kumar		Terrace house, tiled house
9.	Pramod	30/13	Terrace house, well
10.	D/O Jakathamma - Ambika(W/O Mohan Kumar)	30/14	Terrace house, concrete toilet, toilet, well
11.	Sajeev Kumar	29/3	Two floried house, boundary wall, DR foundation 10m, asbestos sheet house, well, cattle shed
12.	Ravindran	29/6	Terrace house, well, sheeted shed, building with 2room concrete
13.	Aneesh	29/10	Well, asbestos sheet house
14.	Sheela Kumari	29/11	Sheeted house
15.	Saritha W/O Shanmukhavelu	29/12	Sheeted house
16.	Krishnapillai	28/18	Sheeted old building
17.	Satyaneshan	28/23	Terraced house(small)
18.	Lissy George	28/24	Terraced house(small)
19.	Shobha W/O Mohanan	28/25	Terraced house(small)
20.	Joseph Francis	28/26	Terraced house(small)
21.	Madhu	31/5	Two floried house
22.	Bindhu	31/5	Tiled house
23.	Sudharshan	31/6	Terraced house, mud shed made of tin sheet, cattle shed, well

24	Nagesh Kumar	30/7	Terraced house, boundary wall, extended roofing
25	Akhilesh Kumar	30/8	Terraced house
26	Raju	30/9	Terraced one room, sheeted house, well
27	Gopinadhan	30/10	Sheeted house, well
28	Harikumar	30/16	Sheeted house, well, bathroom, toilet
29	Neshamma D/O Rajamma W/O Mohanan	30/17	Terraced house, well, sheet extended sheeted kitchen, bathroom
30	Sreekala W/O Viswambaran	30/20	Terraced house, roofing above
31	Akhilesh Kumar	30/21	Terraced house
32	Valsala W/O Pushkaran	30/22	Terraced house, roofing above

Table 4.1.2 Possible Impacts of the Project

Possible Impact of the project	Number of families
Loss of land	141
Affected residence	32
Loss of Livelihood	115

One of the Affected House



Besides the above explained impacts lots of trees have to be cut down for the implementation of the project.

Table 4.1.3. Impact on Productive Assets

Name of the tree	Approximate Number
Coconut	913
Arecanut	322
Tamarind	9
Seethapazham	4
Rubber	1128
Coco	8
Kappi	16
Pineapple	586
Pepper	136
Pappaya	22
Guava	89
Mahagony	979
Teak	35
Neem	22
Plumber	1020
Kaitha	459
Mango tree	306
Etti	2
Anjili	211
Perumaram	3
Aryavep	4
Jack fruit	149

4.2. Land requirement for the project

For the development of LPSC for ISRO at Valiyamala, about 50 acres of land is required which belongs to Karipoor village, Nedumangad Taluk in Thiruvananthapuram district.

4.3. Use of Public Land Affected by the Project

All the affected land is owned by private parties, thus no public land is affected with this project.

4.4. Land Already Purchased

No land is purchased, alienated, leased or acquired already in the area for the requirement of the proposed project.

4.5. Nature and Present use of the Affected Land:

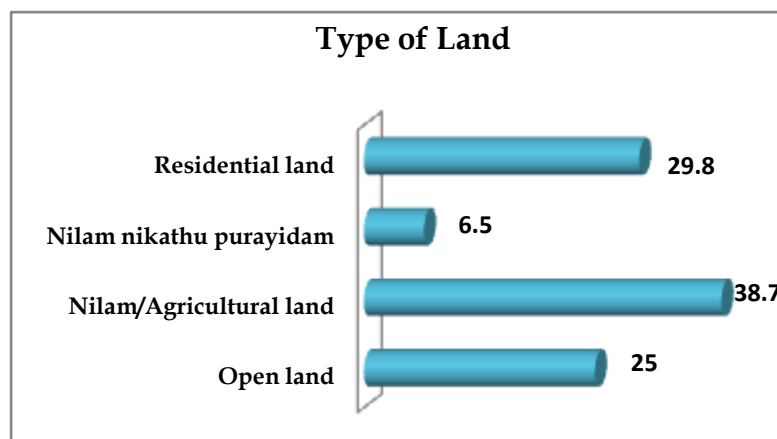


Figure 4.5.1 Type of Land

The following diagram depicts the type of the acquired land. Out of the total land area 29.8% of land comes under the category of “Residential land”, 6.5% land comes under “Nilam nikathu purayidam”, 38.7% comes under Nilam/Agricultural land and 25% of the land are graded as “Open land”.

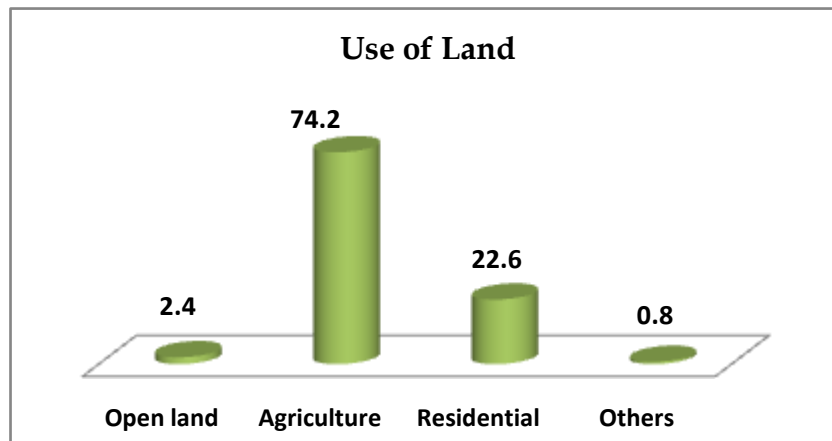


Figure 4.5.2 Use of Land

The following diagram depicts the present use of the acquired land affected. Out of the total land 2.4% of the land are open land, 74.2% of land are used for agricultural purposes, 22.6% of land are used for residential purposes and only 0.8% of land belongs to other category.

4.6. Size of Holding, Ownership Patterns and Number of Residential Houses

The affected properties are owned by 141 families.

4.7. Land Price and Recent Changes in Ownership

As per the information given by the respondents, no transactions had been taken place in the affected properties for the last three years. The market price of land as per the recent transactions in the locality was between Rs.3 and 4 lakhs per cent.

CHAPTER 5

ESTIMATION AND ENUMERATION

This chapter comprises of the details of the families that are directly and indirectly affected by the project, extend of impact and the mitigation measures that the requiring body stated that it will introduce in project proposal.

5.1 Affected Families of the Project

There are 141 families who are being directly affected because of the land Acquisition for Liquid Propulsion Systems Centre (LPSC) for ISRO at Valiyamala, Thiruvananthapuram District. SIA team could recognize only 124 families during the survey and their socio-economic background is assessing below:

Social Background of the Directly Affected families

Table 5.1.1. Religion of the Affected families

Religion	Frequency	Percent
Hindu	65	50.4
Muslim	4	3.1
Christian	53	41.1
Not Responded	2	5.4
Total	124	100.0

Above table shows the religion of the affected families in which 50.4% belongs to Hindu, 3.1% belongs to Muslim and 41.1% belongs to Christian.

Table 5.1.2. Caste of the Affected families

Caste	Number of families	Percent
SC	6	4.8
ST	0	0
OBC	95	76.6
General	21	16.9
Not Responded	2	1.7
Total	124	100.0

Above table shows the caste of the affected families in which 4.8% of the families belong to SC category, 76.6% belong to the OBC category and 16.9% belongs to the general category.

Table 5.1.3. Type of Ration Card

Colour of Ration card	Number of families	Percentage
White	33	26.6
Blue	54	43.5
Pink	24	19.4
Yellow	4	3.2
Information not revealed	9	7.3
Total	124	100

Above table shows the type of ration card, based on the classification by *Public Distribution System* the affected families possess the ration cards as 26.6% have white color ration card, 43.5% have blue, 19.4% have pink and 3.2% have yellow color ration card.

Table 5.1.4. Family Pattern

Family pattern	Frequency	Percentage
Joint	19	15.3
Nuclear	99	79.8
Single	3	2.4
Total	124	100

About 15.3% of the families are joint families, 79.8% of the families possess a pattern of nuclear type and only 2.4% have single family pattern.

5.2. Livelihood Affected Families

During the survey, 115 families shared that they lose their livelihood due to the proposed Land Acquisition for Liquid Propulsion Systems Centre (LPSC) for ISRO at Valiyamala, Thiruvananthapuram District.

5.3. Detailed Mitigation Plan stated by the Requiring Body:

It appears from the analysis and overview of the Act that the provisions of compensation for land acquisition under RTFCTLARR Act, 2013 will be sufficient to mitigate the impact. Speedy disbursement of compensation is preferred. Mitigation measures will be given as per the standard practice/procedure (Cited from the technical data given by ISRO for the study of Social Impact Assessment).

CHAPTER 6

SOCIAL IMPACT MANAGEMENT PLAN INSTITUTIONAL FRAMEWORK

6.1 Institutional Structures and Key Persons

RTFCTLARR Act, 2013 defines the **Administrator** appointed by the State Government would be the person responsible for Preparation of Rehabilitation and Resettlement Scheme for affected families of Land Acquisition. Subject to the superintendence, directions and control of the appropriate Government and the Commissioner for Rehabilitation and Resettlement, the formulation, execution and monitoring of the Rehabilitation & Resettlement Scheme shall vest in the Administrator.

In the proposed land acquisition for Liquid Propulsion Systems Centre (LPSC) for ISRO at Valiyamala, Thiruvananthapuram District, the major mitigation measures from the acquisition can be handled by providing the appropriate compensation under the RTFCTLARR Act, 2013.

As per G.O. (Ms.) No.485/2015/RD, dated 23/09/2015, The Kerala State Policy for Compensation and Transparency in Land Acquisition, the District Level Fair Compensation, Resettlement and Resettlement Committee comprising:

- District Collector, Administrator for resettlement and rehabilitation,
- Land Acquisition officer,
- Finance Officer,
- Representatives of the requiring body to take financial decisions on its behalf,
- Representatives of Local Self Government Institution will monitor the Rehabilitation Action Plan. (No rehabilitation is required for this project)

CHAPTER 7

SOCIAL IMPACT MANAGEMENT BUDGET AND FINANCING OF MITIGATION PLAN

7.1. Costs of all resettlement and rehabilitation costs

Necessary budget provision exists for meeting the cost of acquisition.

7.2. Annual budget and plan of action

Not Applicable

7.3. Funding sources with breakup

Not Applicable

CHAPTER 8
**SOCIAL IMPACT MANAGEMENT PLAN MONITORING
AND EVALUATION**

8.1 Key Monitoring and Evaluative indicators

Not Applicable

8.2 Reporting mechanisms and monitoring roles

Not Applicable

8.3 Plan of independent evaluation

Not Applicable