EUROPEAN RESIDENTIAL AIRPARKS IN THE CONTEXT OF LOCAL SUSTAINABLE RURAL DEVELOPMENT

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ABSTRACT

Many European rural areas are experiencing decline caused by out-migration and ageing, problems associated with lower skills-bases, isolation and exclusion and a lack of, or reducing, infrastructure and public service provision. Whilst Could a Residential Airpark (RA) help to reduce or reverse this decline even though there is concern about aviation effects on the environment?

Sustainable Development (SD) and Sustainable Rural Development (SRD) are about balancing economic growth, social stability and environmental protection. This research, conducted using mixed methodology and case study investigation techniques, explored in relation to notions of SRD, some of the positive and negative economic, social and environmental impacts that result from a European RA development.

European RAs, be they permanent or second homes, were identified to generally have beneficial impacts in their immediate local area. Negative environmental impacts, contributing to environmental degradation are considerably reduced by Airpark's taking positive actions e.g. noise abatement procedures, landscaping etc. It also concludes that economic and social impacts should be taken into account, in addition to environmental impact assessment studies, for residential Airpark development applications.

The literature review considered other comparable residential developments, e.g. holiday villages, marinas etc. as there is very little published literature about RAs or their economic, social or environmental impacts and none that the researcher could find on European RAs.

Keywords: Residential Airpark, General Aviation; Sustainable Development; Sustainable Rural Development; economic impact, social impact and environmental impact.

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DEFINITIONS

AERIAL WORK: is an aircraft operation in which an aircraft is used for specialised services such as agriculture, construction, photography, surveying, observation and patrol, search and rescue, aerial advertisement, etc. (ICAO, 2006a)

AIR POLLUTION: is the contamination of the atmosphere by gaseous, liquid or solid wastes or by-products that can endanger human health and the health and welfare of plants and animals, or can attack materials, reduce visibility, or produce undesirable odours (Thinkquest.org, no date)

AMPHIBIAN AIRCRAFT: aircraft that can take off and land on either land or water as having retractable/interchangeable floats and wheels (Farlex, 2011)

BIODIVERSITY: "…the existence of a wide variety of plant and animal species in their natural environments" (Collins, 2009).

CARBON FOOTPRINT: "a certain amount of gaseous emissions that is relevant to climate change and associated with human production or consumption activities" (Wiedmann and Minx, 2008)

CHANNELS OF IMPACT: the economic, social and environmental impacts on an area or community.

COMMERCIAL AIR TRANSPORT: an aircraft operation involving the transport of passengers, cargo or mail for remuneration or hire (ICAO, 2006b)

DIRECT EFFECTS: the changes in economic activity in the local area during the first round of spending (BusinessDirectory.com, 2011a)

ECONOMIC IMPACT: the macroeconomic [positive and negative] effects on commerce, employment or incomes produced by a decision, event, [activity] or policy (BusinessDirectory.com, 2011b)

ENVIRONMENT: anything outside an organism in which the organism lives and can be a geographical region, the pollutants or the noise which surrounds an organism' (Collin, 1995:3).

ENVIRONMENTAL IMPACT: any change, positive or negative, to land, ecosystems, and human health as a result of any action caused by a development, industrial, or infrastructural project or by the release of a substance in the environment (BusinessDirectory.com, 2011:Blueegg.com, no date)

GENERAL AVIATION (GA): an aircraft operation other than a commercial air transport operation or an aerial work operation" (ICAO, 1944)

GLIDER: a one or two seat fixed wing engineless aircraft designed to glide after being towed aloft or launched from a catapult and weighing less than 650 kg (aerofiles.com, no date)

GROSS DOMESTIC PRODUCT (GDP): is the total market value all final goods and services produced in a country in a given year, equal to total consumer, investment and government spending, plus the value of exports, minus the value of imports.(InvestorWords.com, 2011)

INDIRECT EFFECTS: the changes in sales, income (income includes: wage and salary income, proprietor's income, rents and profits; and jobs) or employment within the area (BusinessDirectory.com, 2011c).

INDUCED EFFECTS: are the increased sales within the area from household spending of the income earned from the activity in direct and supporting industries employees. These employees spend the income they earn on housing, utilities, groceries, and other consumer goods and services generating sales, income and employment throughout the local region's economy (BusinessDirectory.com, 2011d).

INSTRUMENT FLIGHT RULES (IFR): flying using aviation instruments where weather is worse than VFR minimums which are no cloud within 1500 metres horizontally or 1000 feet vertically from the aircraft, and the "visibility" must be at least 5km flying below 10,000 and 8km above 10,000ft in the UK and elsewhere where cloud ceiling less than 1,000 feet AGL and/or visibility less than 3 miles to maintain altitude and separation (ICAO, 2006c)

MICROLIGHT: aircraft having no more than two seats with a maximum take-off weight of: 300 kg for a landplane, single seater; or 450 kg for a landplane, two-seater; or 330 kg for an amphibian or floatplane, single seater; or 495 kg for an amphibian or floatplane, two-seater(JAA, 2004)

MOTOR GLIDER: a fixed wing one or two seat aircraft that can be flown with or without engine power and weighing less than 750 kg.(Sonex, 2011)

PERMANENT RESIDENCE: the main, regular, or the only residence (home) at a fixed address (BusinessDirectory.com, 2011).

RESIDENTIAL AIRPARK (RA) or FLY-IN COMMUNITIES: "residential developments comprising two or more properties that have aircraft hangers or parking, with direct taxiway access to an airfield which have a grass, concrete or tarmac runway. Airparks are usually privately owned and their use is restricted by the property owners and/or management company and do not usually include commercial operations or businesses (Sinclair, 2007).

RURAL: a population density below 150 inhabitants per square kilometre and regions classified into:

a) Predominantly Rural region (PR): where more than 50% of the population is living in rural local units (with less than 150 inhabitants per km2);

b) Intermediate region (IR): where 15% to 50% of the population lives in rural local units; and

c) Predominantly Urban region (PU): where less than 15% of the population lives in rural local units (1059/2003/EC).

SEA PLANE: a fixed-wing aircraft capable of taking off and landing on water only (ICAO, 2006d).

SECOND HOME: a property that someone lives in only for short periods, e.g. holidays; or not as their usual home (macmillandictionary.com, 2009)

SOCKENKONTOR: (Swedish) Parish Office(s)

SUSTAINABLE DEVELOPMENT "…meets the needs of the present without compromising the ability of future generations to meet [theirs]" (UN, 1987a) The more modern definition "…meeting needs in ways which deliver social progress, protection of the environment, better resource use, economic growth and employment by having a stable and competitive economy" (UN,2002)

SUSTAINABLE RURAL DEVELOPMENT (SRD): the management and conservation of the natural resources base, and the orientation of technological and institutional change in such a manner as to ensure the attainment and continued satisfaction of human needs for present and future generations (UN, 1987b)

SOCIAL IMPACT: the effects on various people that happen as a result of an action, activity, project, programme or policy. The 'impact' of this action or activity can be positive or negative, and can be intended or unintended, or a combination of all of these (socialimpactsscotland.org, 2011)

TRIKE OR TRICYCLE: aircraft with a tri-gear under-carriage with fixed landing gear, a single engine, a single fixed propeller, a hang glider-style triangular wing and weighing less than 1320 lbs.(beasportpilot.com, 2008)

VISUAL FLIGHT RULES (VFR):"…regulations and rules covering the operation of aircraft primarily by visual reference to the horizon (for aircraft control) and see-and-avoid procedures (for traffic separation)(CAA, no date)

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CHAPTER 1

1.1 Introduction

This study considers the sustainable rural development (SRD) implications of Residential Airparks (RAs), be they permanent/main or second homes, in Europe and more generally. As will be shown they have grown in number, but unevenly, across Europe in recent decades. A number of issues arise out of this growth, not least in terms of rural transport, economy and community; greenhouse gas emissions (GHGs), carbon footprint and so on. By studying RAs, through secondary literature and case studies RAs, the author seeks to explore and consider some of the significant economic, social and environmental impacts of RAs upon their locality by clarifying the essential characteristics of RAs in rural Europe; their main development features and setting in the context of SRD.

The author's involvement with General Aviation (GA), as a trainee Private Pilot and an interest in SRD, as many European rural areas face problems of decline or stagnation, provided the initial interest for this area of research.

Branch and Ross (1997) consider that there are three issues to consider for a project: Is the project equitable, sustainable and acceptable to the community at large? RAs, be they permanent or second homes, are a phenomenon that are appearing in many countries of the world and *may* have positive and beneficial economic, social and even environmental impacts in rural European areas. As European Commission Vice-President Jacques Barrot (EC, 2008a) stated "…we fully recognise the value of non-commercial aviation [i.e. GA] in Europe…it is a large source of employment, expertise, technology and revenues".

At present the only impact study that all RA projects worldwide have to carry out as a pre-requisite for obtaining development permission, is an environmental impact assessment (EIA). This research explores some of the positive and negative social and economic impacts, as well as environmental impacts, of rural European RAs in relation to notions of SRD by using a mixed method approach which includes the use of secondary sources and case studies to evaluate the role of RAs in SRD.

To date there is no "one-click" RA directory easy access to data on the European RA phenomenon, or much academic literature on this subject. Investigation has entailed painstaking and extensive research. RA development in European rural areas may assist in redressing the range of issues associated with rural decline and will provide knowledge which will be of interest to (i) those studying SRD (in relation

to transport, economy, etc. ii) those charged with the sustainable governance of rural economies, iii) specific Sustainable Rural Development (SRD) projects, (iv) prospective RA developers, and (iv) GA aircraft owners, pilots and light aircraft aviation enthusiasts.

GA aircraft ranging from gliders and powered parachutes to large, non-scheduled cargo jet flights includes business jets, rotorcraft, piston and jet-engine fixed-wing aircraft, gliders of all descriptions and lighter than air craft. Activity principally involves individual, small and medium-sized operations or not-for-profit organisations classified into instructional, business and pleasure flying and aerial work.

Approximately 50,000 motor-powered GA aircraft and 180,000–200,000 micro-light and non-motor powered aircraft, used for sport, recreation or business, fly in Europe. (EC, 2008b) In 2005 approximately 15 million European GA and Business flights took place and less than 1 million of them were operated under air traffic control supervision (EC, 2007a). GA offers flexible transportation for individuals and local communities by increasing mobility, productivity of enterprises and regional cohesion and also provides environmental surveillance, fire-fighting, map charting and emergency medical transportation, recreational and sport aviation. That the GA sector can make use of RAs is important both in the air and on the ground, for (1) the aviation industry, (2) promoting technical knowledge and (3) aeronautical skills (EC, 2007b). It is a popular misconception to think GA is only for the rich. Many people own aircraft costing less than a new family car (AOPA, 2009) or fly by sharing or hiring aircraft and come from all walks of life.

1.2 FOCUS RATIONALE, RESEARCH OBJECTIVES AND TOPIC CLARIFICATION

RAs have thus far received little academic attention from within rural or transport studies. There is at present no published research that the researcher has found on the phenomenon and their impact in an expanding area of European rural residential development and a potential for rural diversification.

RAs may have beneficial economic, social and even environmental impacts in rural Europe, but clearly this idea needs testing. It is also possible that such benefits to the local community may outweigh any negative impacts relating to aviation emissions and land use either if the land was solely agricultural or forestry or left

unused. In some instances RAs utilise old infrastructure disused such as a WWII airfield or an underused municipal aerodrome. In other cases they are “new build”.

The focus of this research investigates some of the social, economic and environmental impacts, both positive and negative, of rural European RAs. The purpose is to explore these in relation to notions of SRD and ascertain if RAs economic, social and addressed environmental impacts[1] may outweigh their negative impacts, therefore assisting in addressing a range of issues associated with rural decline. These include reducing out-migration; increasing employment opportunities; agricultural diversification; expanding land use; developing the local economy, income base and infrastructure; and whether RAs may also assist in developing tourism, other aviation related activities and be of social benefit. The research objectives are to:-

1. Clarify the essential characteristics of RAs in rural Europe and the main features of their development;
2. Establish and consider some of the RAs’ significant economic, social and environmental impact upon their locality and to explore those who benefit and those who are disadvantaged; and
3. Set and evaluate European RAs development in the context of SRD.

Potential channels of impact will be explored in greater detail through case studies.

The formulation and implementation of comprehensive RD strategies and action plans, to support and deliver SRD and address rural economic, community and environmental issues, are bringing in new resources for rural regeneration activity.

[1] e.g. landscaping to off-set carbon footprint

Figure 1 Sustainable Development Strategies (newppt.com, 2010)

Rural often seen in opposition to urban, can be divided into typology[2], or territory or geography.[3] More than 91% of the territory of the EU is "rural" and is home to more than 56% of the population (EC, 2008c). The Organisation for Economic Co-operation and Development's (OECD) criteria used by the EC, combines population density, distribution and size to identify and classify rural local units (e.g. administrative areas.) with a population density below 150 inhabitants per square kilometre. Regions are classified into:

a) Predominantly Rural region (PR): where more than 50% of the population is living in rural local units (with less than 150 inhabitants per km2);

b) Intermediate region (IR): where 15% to 50% of the population lives in rural local units; and

c) Predominantly Urban region (PU): where less than 15% of the population lives in rural local units (OECD, 2009).

[2] what constitutes a rural area i.e. what are the distinguishing characteristics that make an area rural rather than non-rural;
[3] i.e. some national statistical systems define what urban is and then define rural as non-urban

The enhancement of a nation's human capital leads to economic growth. The LEADER,[4] or Community Initiative programmes, are integrated and endogenous economic development approaches i.e. economic growth generated from within the system as a direct result of internal processes. They targets motivating local actors to carry out novel multi-sectorial projects which are able to valorise and exploit local resources to improve the competitiveness of rural areas. The European Social Fund (ESF) aims to address social inequalities within and across regions by improving the general performance of the labour market. The European Regional Development Fund (ERDF) Programmes promote the economic development and regeneration of areas within European Member States. This includes improving key support services to underpin the sustainability of rural economic development and increase the diversification of rural economies into new activities to maximise the contribution of rural areas to achieve Treaty of Lisbon goals. RAs may be one way of addressing decline in certain European rural areas. The researcher takes the view that RAs have many different facets with varying degrees of economic, social and environmental impacts and by only considering environmental impacts, as part of required planning/development applications, *may* result in lost opportunities for SRD.

[4] Liaison Entre Activités du Développement de l'Economie Rural. The LEADER Initiative for RD began in 1991 with LEADER I, from 1994-1999 with LEADER II, LEADER+ from 2000-2006 and from 2007-2013

CHAPTER 2
RESIDENTIAL AIRPARK DEVELOPMENT

This chapter sets out the development of Residential Airparks (RAs). It is divided into two sections, firstly setting out their origin and secondly, their development within Europe. In the USA there are in excess of 500 RA's, or Fly-in Communities. The phenomenon is also appearing worldwide, the Far East, Australia, Africa and parts of Europe. However, none as yet have been developed in the United Kingdom. Examples of non-European RAs can be found in APPENDIX A.

2.1 Origin of the Residential Airpark Phenomenon

The RA phenomena originated in the USA. Byington Ford's RA, opened on December 7th 1941 in California now known as the Carmel Valley Historic Airpark, is regarded to be the first (CVHAS, 2003a). "Airway Ranch" developed in 30 acres on part of a 19th century Mexican ranch, is situated 8 nm southeast of Monterey Airport, a few miles from the Californian coast. Although the world's first RA it was minimally developed as such.

After World War 2, Ford, a property developer, settled on the Monterey Peninsula and with his brother Tirey, founded the Del Monte Aviation Company. They were convinced small aircraft mass production would put planes within the reach of anyone affording a car. The development project, "Airway Ranch", would comprise of twenty-four properties where pilots could park their aircraft next to their homes and an up-valley wind channel[5] grass runway, i.e. an Aviators Village. This early RA history points to the important geographic and economic factors that surround RAs in terms of location, affordability, type of aircraft and SRD.

A prototype show home hangar-house was built (Fig. 2) however the bombing of Pearl Harbour, also an aviation story, and declaration of war the day after the RAs official opening, setback any further development.

[5] Perfect for all-day take-offs and landings as aircraft need ideally to take-off and land into wind.

Figure 2: Airway Ranch hanger-house belonging to Tirey Ford, Circa 1945
(Freeman, 2002, 2011a)

The war effort meant building materials became scarce, civilian flights prohibited along the West Coast.

Airway Ranch (Fig. 3) became known as “the Double "F" Ranch” or "Ford's Folly" After the War it was soon apparent there would not be a plane in every garage. Even though some GA sectors grew and developed and a large number of individuals had trained as pilots during the War, the post-war boom in private aircraft sales did not materialise and plots were extended to non-aviators.

Figure 3 Airway Ranch (Carmel Valley Historic Airpark Society, 2003b)

Between 1946-47 a General Store, barber shop, ‘drug store’ and soda fountain, beauty shop and ‘liquor store’ were built, expanding the Village. California State licensed the Airpark in 1949 and it was renamed Carmel Valley Airport (Fig.4) Byington retired in the 1950’s, selling the Airport to Peter Delfino. Although a non-aviator, Delfino used it to host aviation events and constructed a paved runway.

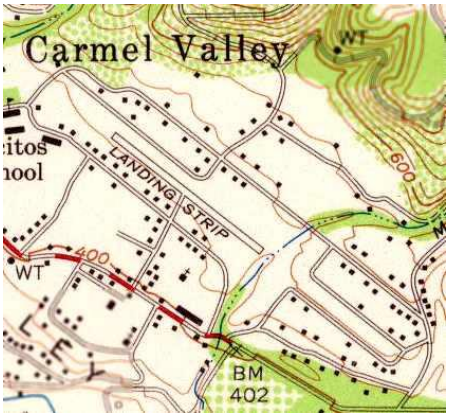


Figure 4 1956 USGS topographical aviation chart Carmel Valley Airport
(Carmel Valley Historic Airpark Society, 2003c)

For many years the Airpark co-existed alongside the local town, becoming important and an integral part of its emergency and fire safety contingency plans. California Department of Forestry used it for refuelling fire-fighting helicopters; by medical helicopters for disaster scenarios and for pilots unable to land at fogged-in civil airports or running low on fuel. It also provided a village firebreak. These are just some of the benefits RAs can have for small rural communities.

In 1994 Lars de Jounge, an aviator interested in flying vintage aircraft, leased the Airpark and applied to build ten hangar homes specifically for vintage aircraft and their owners.

Figure 5 Lars and Barbara de Jounge cira 1995
(Carmel Valley Historic Airpark Society, 2003d)

However, some local non-aviation residents, government officers and developers wanted to close the RA. Delfino (Fig. 5) had not specifically wanted the Airpark closed, but did want to realise his investment. The Carmel Valley Historic Airpark Society was formed by local pilots and others to save the Airpark and find a sponsor. In 2000, the California Historical Resources Commission voted unanimously to nominate Delfino's Carmel Valley Vintage Airpark a State Historic

Resource as it represented the first RA in the USA and the world. However, the Airpark closed in 2002. Today, whilst some buildings are still there and the site maintained and used by local residents as a park, the runaway has fallen into disrepair (Fig.6).

Figure 6: Carmel Valley Airpark, circa 2006 (Freeman, 2002, 2011b)

RAs have continued to be developed and the most well-known is Spruce Creek Fly-in Community in Florida, USA. A gated village of almost 5,000 residents including more than 800 families with many having young children, it comprises 1,300 homes and 700 aircraft hangars. Within its extensive maintained communal grounds is a 4000' paved lighted runway and fourteen miles of taxiways (7f16.com, 2008) capable of accommodating jet aircraft from Lear jets to Boeing 707's.

However, it was 50 years after "Airway Ranch" till the first RA was developed in Europe.

2.2 European Residential Airpark Development

European RA development began in 1993 after a British pilot had made an emergency landing adjacent to a farm. The pilot persuaded the farmer to sell him a piece of his land so he could build a home and a hanger for his aircraft. However, the pilot's wife felt the area too isolated and the plan abandoned.

Anonier, the farmer, and his son Pierrick, both aviation enthusiasts, then dreamt of constructing a RA along similar lines to those in the USA. They started developing **Vendée Airpark** on 70 hectares of farmland near the beach at Talmont-Saint-Hilaire. Europe's first RA opened two years later, fifty years after Airway Ranch in the USA. Vendée Airpark comprises 52 plots and has two runways; one concrete 850m x 12m and one 700m x 30m grass (Fig. 7). Local fauna and flora conservation was important to the Anoniers. All the trees and hedges were retained, with extra boundary hedges planted, the several lakes and ponds were stocked with frogs instead of chemicals, to keep mosquitoes at bay. Houses were individually designed, but retaining local architectural style, and landscaped to attract insects and increase local fauna and flora habitats.

Today, Vendée Airpark residents are international and include French, British, Germans, Swiss, Belgians, Dutch, Canadians and New Zealanders with one-third living there permanently. They are generally retired middle-class professionals or business owners. However, some residents who originally bought plots to develop as holiday homes have relocated to the Airpark and are now working in the local region or from home. Vendée Airpark facilities include a 10 room hotel, a communal bar, swimming pool and tennis court, (Taylor, 2011).

Figure 7 Vendée Airpark (aerotourisme.info, no date)

Since then, with France leading the way, other RAs have developed within Europe. These will be listed by European Member State below and include a brief description and some technical runway information. This technical information is

important because of the different braking characteristics of grass and tarmac and runway length and surface dictates the types, sizes and weights of General Aviation (GA) aircraft that can both land and take-off there and therefore the people who will live there. Some GA pilots prefer, when there is a choice, to take off from concrete or tarmac and land on grass, providing of course that the grass runway is well maintained. This delivers less stain and wear and tear on an aircraft's airframe, but many pilots' insurance preclude grass landings (Waldorf, 2010). Taxiway width is important as this too governs GA aircraft size,[6] therefore RA plot or home purchase.

Some European Airparks have strict criteria as to who can own, use or rent property or visit[7] (Delahaye, 2011), others have no restrictions as to who can purchase or rent a property other than runway or taxiway specification.[8] This means people not owning an aircraft, but are aviation enthusiasts, can live alongside those that do and share a common interest. As with any neighbourhood every RA community has its own personality. Some RA communities are a neighbourhood adjacent to a commercial airport or GA aerodrome, a "through-the-fence" development, while others are designed specifically as an aviation community having their own runway(s) and which may or may not have local public services[9] or facilities[10] and visiting pilots to be authorised.[11] Some RAs comprise only of large hangars with living accommodation,[12] others adopt a more traditional or national appearance[13] or are extremely luxurious.[14]

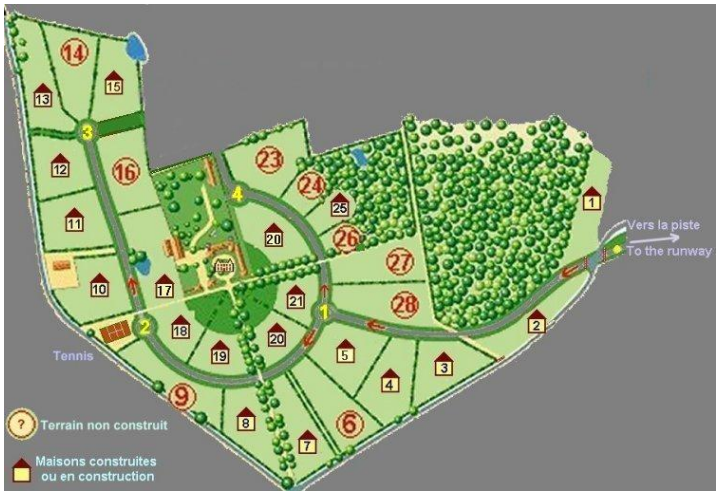
Below is the current status of rural European RAs.

[6] overall length and wingspan
[7] Aero Delahaye, near Le Touquet in France, requires at least one person in the household to hold a pilot licence who has a minimum of 250 hours as Pilot-in-Command.
[8] Le Village Aeronautique des Lacs, near Biscarrosse in France, requires neither aircraft ownership nor pilot's licence.
[9] e.g. Bus services
[10] Local or national Government maintained roads, street lighting etc.
[11] Atlantic Airpark, SW France requires at least 48 hours notification in advance.
[12] e.g. Prague Regional Airpark in Czechoslovakia
[13] e.g. Siljan Airpark in Sweden
[14] e.g. Mazury Residence in Poland.

2.3 EUROPEAN AIRPARKS

FRANCE

Atlantic Airpark opened in 2000 (Figs.8 & 9). It is also situated in Vendée region, on the outskirts Chasnais. Comprising 28 plots and a 760M x 12M tarmac runway on 62.5 acres. Atlantic Airpark was actively encouraged and promoted by the Mayor of Chasnais and developed by Pierrick Anonier, who also developed Vendée Airpark.



Figures 8 & 9: Atlantic Airpark (atlanticairpark.com (no date)

Aero-Delahaye, situated 35 kms from Le Touquet at Verchocq, originally consisted of 91 plots constructed on 5 hectares of agricultural land by the farm owner in 2001 (Fig. 10). In July 2011 a second phase became available for purchase. Most plot owners are from France, Luxembourg and Belgium. There are some British owners but Delahaye (2011) reported to the author that "…due to the financial economic

crisis of 2008, and the depreciation of the pound against the Euro, British plot owners are selling rather than buying." One of the differences between Aero Delahaye and some other Ras is that both common amenity areas and plots are fully serviced and maintained by the Airpark during owners' absences.

Figure 10: Aero-Delahaye (aero-delahaye.com (no date)

Le Village Aéronautique des Lacs (LVA) is situated midway between Biscarrosse and Parentis-en-Born in the Acquitaine region of SW France (Fig. XXX) and is a gated "over the fence" community comprising 63 plots on 31 hectares linked by taxiways and access to the airfield is by pilot activated remote controlled gates. Operational in 2006 it utilises the municipal aerodrome of Biscarrosse-Parentis with its 800m x 20m asphalt runway and 300m grass runway (Fig 11). The Lake at Biscarrosse also has facilities for sea and float planes. LVA, one of my RA case studies, and Biscarrosse will be described in greater detail in 5.1.2 and 5.1.3 below.

Figure 11: Le Village Aeronautique des Lacs (valbisca.fr (no date)

Nogaro Airpark comprises 8 properties each with direct access by taxiway to a hard surfaced 999m runway (Fig. 12). Planning Permits were applied for in 1999 and it became operational in 2007.

Figure 12: Nogaro Airpark (malibos.aviation, no date)

Dinair Village is situated in the Côtes d'Armor Trélivan municipality of Brittany and utilises part of the Dinan airfield (Figs.13 & 14). The Airpark comprises an area of 23 hectares, which includes 13.5 acres owned by Dinan local administration and 80.9 acres owned by private individuals, with 46 plots directly linked by taxiways to a hard surfaced 835m runway.

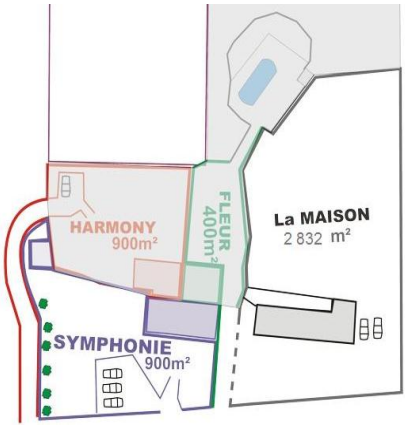
Figure 13: Dinair Village (dinair-village.com, no date a)

Figure 14: Dinair Village Site Plan (dinair-village.com, no date b)

Country Air Park was constructed in 1999 and is situated on 60 acres near the village of Berdoues near Mirande (Fig. 15). Developed by André Gurgui and Alain Lalanne on a private strip already owned by Gurgui the Airpark comprises 15 plots with taxiways to a 940m asphalt runway.

Figure 15: Country Air Park (homecountryairpark.com, no date)

Village Aeronautique de la Boissiere is Europe's smallest situated near the village of Coex in the Vendee region and became operational in 2011 (Fig.16). This small Airpark has a grass 550m x 30m runway and just 4 properties, each with space to build aircraft hangers.



Figures 16 Village Aeronautique de la Boissiere & Site Plan (village-aero, no date)

SPAIN

Airpark Spain is situated 200m above sea level in a large valley between the Sierra Carascoy mountain range and the Sierra Espuña national park, in the Mercia region of south-east of Spain. It obtained planning permission in 2002 for an ambitious Airpark project of 140 plots. 70 plots of these would be connected by taxiway to a 1,217m asphalt runway. An aeronautics centre supplying spare parts, accessories and aviation mechanic services; rental hangers; a pilot training school, glider facilities and a base for commercial flights, i.e. charter, taxi, air sight-seeing; an hotel, cafes, bars and shops and on-site sports facilities (tennis courts, gym, swimming pool etc.) were also planned.

However, only the runway, taxiways, roads, main services and 3 houses were completed. Today one property is inhabited and the other two properties have fallen into disrepair (Fig.17).

Figures 17: Airpark Spain (globalcosta.com, no date)

BELGIUM

Amougies,Airpark is located at the foot of Mont-de-l''Enclus and developed in 1988 after Jean-Marie Guisset, owner of Amougies aerodrome, visited a friend in the USA who lived in a "flying community". Guisset thought that it would be good to develop this concept in Belgium on his airfield. Belgium law, however, dictates airfields cannot have houses constructed on them but does allow aircraft hangers to have houses built as an annex (Fig. 18). Building permits were applied for 30 plots and plot owners could build to local planning specifications.

Figure 18: Amougies Airpark: (archives.lesoir.be, no date)

Unlike Vendée Airpark in France, Amougies Airpark allows pilot training, though within strict guidelines so as not to disturb neighbours. However, only 7 houses were constructed with access to the 610m grass runway and which now is only available to microlight aircraft.

Gravity Park is currently in the planning application stage and will take over where Amougies Airpark left off, developing the Belgium RA phenomenon. Situated at Cerfontainemnear the Lacs de l'Eau d'Heure, on an airfield built in the late 1990's with 2 grass runways, 675m and 800m, the village will comprise of 40 to 50 ecological low-energy wooden houses. Each will be equipped with state-of-the-art technology and adjacent aircraft hangers (Fig. 19). An 800m hard runway, replacing the 800m grass runway, is also planned.

Figure 19: Gravity Park (artists impression) (gravitypark.be, no date)

GERMANY

Müritz Airpark started development in 2006 to not only develop a gated fly-in community within the perimeter of Rechlin-Lärz airport, similar to those in the U.S.A., but include a marina, golf-course, hotel and restaurant. Rechlin-Lärz airfield was originally a Russian Airforce base[15] and only the runway, taxiways and aprons remained.[16] Situated in rural southern Mecklenburg-Vorpommern, adjacent to Germany's largest lake Lake Müritz, 110 hectares were initially purchased between the airport and Müritz-Havel Canal. Another 160 hectares of airport and surrounding land were later purchased from the German Federal Property Agency. In 2011 Müritz Airpark purchased the airport operating agency from Müritz County District and commenced restoring the 2380m x 50m runway, constructing new taxiways and developing residential plots (Fig. 20).

Conservation, recycling and assisting local SD were an important part of development ideology. 130,000m² of old decayed concrete surfaces, foundations, sewer systems; old military aprons etc. were reduced to approximately 70,000 tons of recyclable concrete and used for hardcore by the local civil engineering company, Herkner. The Airpark hopes to be operational by late 2011.

[15] Handed over to the German Government in 1993.
[16] Like many other former Russian airfields the runway was covered with 2m x 6m concrete slabs on top of the original concrete runway on a bed of 4 inches of sand and cement. This was because these surfaces could easily be repaired after any bomb damage.

Figure 20: Müritz Airpark Site Plan (mueritz-airpark.de, no date)

Ostsee Airpark will consist of 25 plots, with or without a hangar, a 640m x 40m Grass runway and aviation museum with a restaurant and bar. The land and ground works have been completed and each plot is being sold as “ready-to-build-on” i.e. utility supplies for water, sewer, gas, electricity and phone services already connected. Houses and hangars, all with access to the runway, will be individually designed but constructed to local zoning plan regulations.

There had been plans to establish a fly-in community at the Rerik-Zweedorf airfield on the Baltic Sea coast in the North of Germany during the late 1990’s. But it was not until 2005, when Jürgen Steinfeldt, a merchant from Lübeck and passionate parachutist, bought the airfield and submitted plans for Ostsee Airpark to be built in the north-west area of the airfield (Figs. 21 & 22).

Figure 21: Ostsee Airpark (ostsee-airpark.com, no date a)

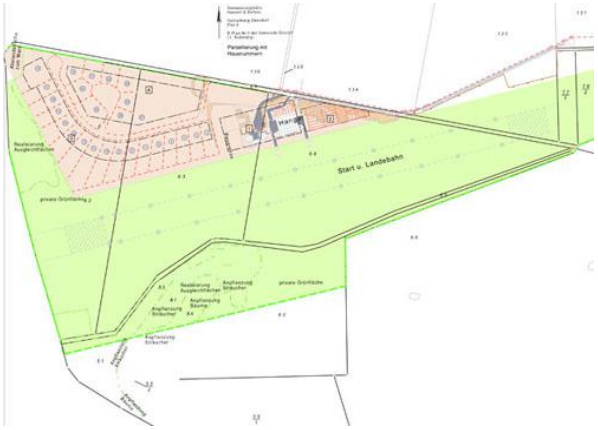


Figure 22: Ostsee Airpark Site Plan (ostsee-airpark.com, no date b)

SWEDEN

Siljan Airpark (SA), Sweden's first, and most northerly, Airpark became operational in 2006. Located just outside the village of Siljansnäs in the Dalarna region, it is part of the Leksand Kommune. Comprising 45 plots linked by taxiways to an 850m x16m asphalt and a 850m grass runway it is on the site of the Siljansnas Flying Club, established in 1958 (Fig. 23). SA, the other of the case studies, and Siljansnas will be described in greater detail in 5.1.4 and 5.1.5 below.

Figure 23: Siljan Airpark (siljanairpark.se, no date a)

Himmelslätta Airpark currently owned by Ulla & Stefan Nystrom a local farming family, is situated at Gagnef in the Dalarna region of Sweden. In 2008 access roads

and services to the Airparks proposed 50 plots (Figs.24, 25 & 26) were constructed. The Airpark has access to a 175m grass runway, currently belonging to the Gagnef Flying Club, but hopes to construct an additional 850m x 16m asphalt lit runway adjacent to it. Whilst not being one of the case study RAs, the researcher was able to visit Himmelslätta Airpark and be given a guided tour.

Figure 24: Himmelslätta Airpark Site Plan (himmelslatta-airpark.se, no date a)

A business hotel was also planned with office space, workshops, restaurant facilities and internet connection and replacing the grass runway with a longer asphalt one. However, to date only 1 show-house has been built by a Finnish company and no plots have been sold and the whole development project has recently been put up for sale.

Figure 25: Himmelslatta Airpark (himmelslatta-airpark.se, no date b)

Figure 26a Finnish Himmelslätta Airpark Show Home (Himmelslätta-airpark.se, no date c)

Other Swedish Airparks under development or in planning are Eslov, Mekarbyn, Trosa, Bergholm and Ljungbyhed.

Figure 26b Airpark Sites in Sweden (Lapplänning©, 2009)

POLAND

Mazury Residence started development, on 165 hectares next to Lake Niegocin, in 2004. 140 plots will be available with 27 houses to date having been constructed by the developers. This Airpark project incorporates an 800mm grass x 50 runway; 2 marinas; an hotel and separate motel; 24 hour service; recreational and medical facilities including air ambulance and water rescue services (Figs. 27 & 28).

Figure 27: Mazury Residence (mazuryresidence.pl, no date a)

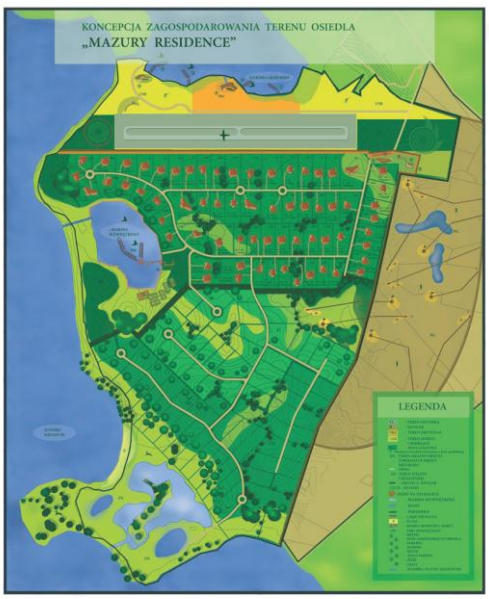


Figure 28 Mazury Residence Site Plan (mazuryresidence.pl, no date b)

LITHUANIA

Paluknys Airpark will be a gated community of 64 plots with space for a home and hanger and sold as ready-to-build situated on 70 hectares within a rural forestry area 30km from Lithuania's capital Vilnius near the rural village of Liepynu (Fig. 29). Developed by a Swedish and Swiss consortium residents have taxiway access to a 50m x 1300m runway which can be used by single and twin propeller light aircraft and helicopters; recreational grounds and a club house and bar.

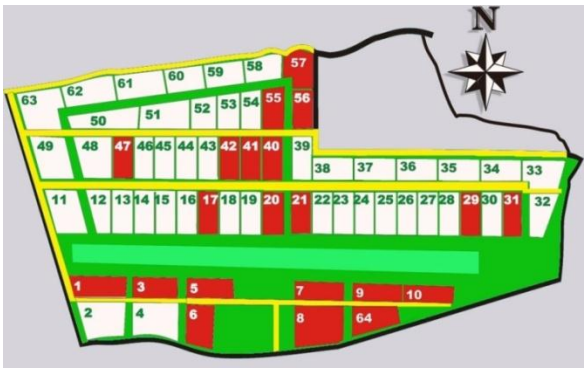


Figure 29: Paluknys Airpark Site Plan (paluknysairpark.lt, no date)

The most recent European RA project is in Switzerland at Bressaucourt Airfield. Opened in September 2011 (Fig. 30) it plans to have between 20-25 plots with access to an 800m x 18m asphalt runway on 7 hectares of former agricultural land. The RA will have a communal swimming pool and spa.

Figure 30 Swiss-AirPark (swissairparks.ch, 2011)

Three RA projects applied for planning permission in the UK, SkyPark, near Telford in Shropshire; Henstridge in Somerset and Kemble in South Gloucestershire in the 1990's. However, none were successful, rejected due to environmental concerns raised by local residents.

CHAPTER 3

LITERATURE REVIEW

This literature review supports my research into the phenomena of RAs and enables some local impacts of RA developments to be discussed in relation to European rural sustainability and will include a justification for this research. It will be divided into 3 sections citing literature examined in this research. Section 1 cites literature on RA and other comparable sport and tourism related literature. Section 2 cites literature on Sustainable Development (SD) and Sustainable Rural Development (SRD) relevant to Airpark Development in rural Europe and Section 3 cites some of the methodological literature considered by the author.

3.1 GENERAL AVIATION (GA) and RESIDENTIAL AIRPARKS (RAs)

The literature, academic or otherwise, on this topic is extremely limited. Whilst there is some published historical information available on North American RAs and various brochures and websites for other world RAs, no studies, that the researcher can find, have as yet been carried out to explore RA economic and social impacts, direct or indirect, neither generally nor in relation to the context of SRD. Currently only environmental impact assessments have to be carried out, as part of the planning application process, for a RA development. Little consideration and no formal assessment are given to economic or social impacts. Literature on many aspects of human activity tends to focus on its negative impacts on the environment (Holden, 2004:69). Therefore, the wider implications of RAs for SRD remain unconsidered at the level of actual developments and at wider levels of assessing alternative forms of rural transport and development.

This research has involved examining literature from outside Europe and other comparable alternative residential models e.g. holiday villages, marinas and golf resorts. This provided an initial foundation which could be applied, to some degree, to European RAs. These alternative forms of rural residential development are relevant when considering RAs as they are often developed as a means of diversification from traditional rural activities. Literature has been examined from many sources e.g. International RA developers, International flying organisations[17] and Civil Aviation Authorities, the Internet, Newspapers, Journal articles and European Commissions. Whilst it is acknowledged that these may not as reliable as other literature, every effort has been made to obtain the most reliable information.

[17] International Council of Aircraft Owner and Pilot Association (IAOPA) and national IAOPA's e.g. IAOPA.uk; IAOPA.se; IAOPA.fr, IAOPA.de

The International Council of Aircraft Owners and Pilot Association (IAOPA) stated "…more than 370,000 GA aircraft and 1,000,000 pilots worldwide flew an estimated 30,000,000 flight hours in 2010" (IAOPA, 2010 APPENDIX B). At one end of GA is business aviation, generally only used by a limited number of people due to its high costs, at the other, training, leisure, sport, travel, employment and emergency flying.

The Council of Ministers road safety report (CM, 2002) noted rural personal ground-transportation implications[18] combined with worsening congestion aggravates the core-periphery syndrome, resulting in employment centres becoming residential centres and leaving remoter rural areas unexploited for employment or residence (EC, 2011). Personal air-transportation implications include:

- enabling living further from employment centres;
- going where you want to and, subject to weather conditions, when you want to;
- overcoming time, financial and environmental costs associated with many current methods of transport;
- an efficient and cost-effective way to go to and from rural areas which have no airline or rail services.(AOPA, 2009)

In Europe, GA plays a vital role in Member States transportation systems and contributes to national economy. Many RA aircraft are used for pilot training and not merely flying from A to B. There are more than 340,000 European GA pilots flying between them in 2007 flew 3-4 million hours (Fig. 32) (EC,2007b p10).

[18] including high fuel consumption; costly maintenance of roads and infrastructure; safety problems as rural roads received less attention in comparison than other networks i.e. motorways and urban roads; 60% of road deaths were on rural roads; excessive and inappropriate rural driving speeds on rural roads.

EUROPEAN GENERAL AVIATION	
90,000	pilots flying private powered aircraft
40,000	pilots flying micro-light aircraft
90,000	pilots flying gliders
115,000	pilots flying hang-gliders and paragliders
5,300	pilots flying balloons and airships
20,000	GA aircraft
22,000	gliders
3-4 Million	Flight hours per annum

Figure 31: Flight Training News, June 2011: EC,2007c

The 2007 European Commission Discussion paper, ""General Aviation in the European Community", noted GA gave specific social and economic benefits as providing:

> "tailored, flexible, door-to-door transportation for individuals, enterprises and local communities; increases mobility, business productivity and regional cohesion…[as]…reaching destinations…airlines do not serve because of operational restrictions or economic considerations…and contributed to the development of tourism at remote locations."(EC, 2007d:28)

It highlighted that air-sports organisations promoted European individuals' qualities, technical knowledge and aeronautical skills and, for young people, raised interest and motivation for future careers in commercial aviation, or aeronautical research and development.[19]

While European GA manufacturing[20] is growing (Foley, 2011) from approximately 1 billion EURO deliveries and 16% of worldwide GA market value in 2007, it remains largely export oriented (EGAMA, 2011).

If RA homes are permanent homes, comparisons can be made to new housing developments with similar, if not identical socio-economic and environmental impacts. RA properties range from very basic to luxurious within a wide spectrum of prices, and in many are not dissimilar to any other transport-based development.

[19] Many trainee pilots and engineers, after GA "hour-building", subsequently move to work in the airline and aviation industries or national Air Forces.
[20] e.g. Diamond (Austria), Europa (UK), CAP & Robin (France), German Aircraft GmbH, Pilatus Aircraft (Switzerland)

IF RA homes are second homes the reality is residents are akin to those who own caravans on caravan parks, boats on marinas and golfers on residential golf resorts, "…a multi-centred lifestyle where work, home and play are separated in time and place, and meanings and identity are structured around not one, but several places and associated circulation among them" (MacIntyre, Willams and McHuge, 2006).

The **FORMAS report** (Swedish Research Council, 2007) noted some Swedish rural areas are benefiting from an influx of knowledge and skills due to the in-migration of these new RA permanent or part-time residents. Computers, mobile phones and aircraft ownership allow people to live a divided life between rural and urban settings. This opens up Sweden's rural areas, with its sparse population, giving access to nature as agriculture and forestry reconstruction is reducing the number of farmers and triggering large changes in the physical landscape.

RAs can add to the local economy in all manner of ways e.g. direct and indirect taxation, purchasing local goods and services, providing employment etc.

3.2 Comparable Alternative Residential Models

European sports-tourism is spreading beyond the mountains, rivers and lakes. Ritchie and Adair (2004) note sports-tourism, combined with agricultural decline, is producing new development models for using basic environmental resources[21] recreationally, and interplaying with cultural and economic values.[22] Most golf resort projects are usually located in non-urban and high quality environment areas. They are associated with substantial land development comprising villas, apartments, hotels and related facilities to attract foreign residents, many retirees, with high incomes. Unlike RAs, the environmental issue is water scarcity and not air pollution.[23]

3.2.1 The Hafan Pwllheli Marina EIA Report (Brooksbank, Hill and Jones-Evans, 2005) identified that the marina was a profitable operation, generating net income for the local community and some increase in local employment and incomes. It was encouraging an entrepreneurial environment for local business development

[21] land, water and air
[22] hospitality, image and atmosphere & commercial and non-commercial development, services and land stewardship
[23] Golf courses require huge amounts of water every day and, as with other causes of excessive water extraction, course maintenance can deplete fresh water resources. If water is drawn from wells, over-extraction can cause saline intrusion into groundwater.

resulting in a more prosperous and exciting future for the area and an important part of the revitalisation of the area.

3.2.2 The Kings Lynn Marina report (ECOTEC, 2007) noted a general shortage of boating facilities in the UK relative to demand and, in terms of local demand, a distinct lack of berths. It stated that:

1. if facilities were provided, people would come and from surprisingly long distances;
2. the development would provide additional local infrastructural facilities;[24]
3. generate local employment,
4. increase local incomes,

and identified funding may be available from European Structural Funds to stimulate enterprise and build a sustainable community.

3.2.3 The Centre Parcs report (Egan and Harrison, 2005) found that although the construction period of a tourism development was relatively short, this phase was important because the impact injected a large amount of economic activity, possibly triggering significant benefits for the local area.[25] Post-construction economic effects are jobs for local people and a significant proportion of many goods and services were purchased from a variety of local companies. Networks of other local tourist attractions with related spending opportunities subsequently arose. Local suppliers surveyed thought a Centre Parcs Village was good for local trade and was 'Very Important, Important or even crucial.' Similarly, though on a much smaller scale, RAs can deliver comparable impacts as evidenced later (5.3-5.5).

[24] e.g. potential demand for boat builders/repair/maintenance facilities, a chandlery and other related retail outlets, fuel, additional residential/hotel, restaurant and bars.
[25] e.g. jobs and multiplier effects.

3.3 Sustainable Development and Sustainable Rural Development relevant to RA Development in Rural Europe

Since 'Our Common Futures' (WCED, 1987) and "Agenda 21" (1992) (UN, 2009) were published the concept of SD has been high on political agendas and in public awareness. Literature on SD and SRD gave the basis for examining the relevance of RA development within the context of SRD.

3.3.1 Sustainable Development

As a concept, SD can be divided into two approaches; (1) Sustainable Economic Development[26] and, (2) Sustainable use of resources and the environment, centering on economic growth and environmental protection not being conflicting interests. This means designing the right mix of economic, social and environmental policies (Strange & Bayley, 2008) to identifying responsibility to conserve natural resources for successive generations (Pearce,1993) and to minimise environmental damage.

Unlike the usually quoted Brundtland Report's SD definition,[27] the contradictory and conflicting interests' of economic and social development and environmental protection are synonymous with the more modern 2002 Johannesburg SD definition[28] and three-pillared approach[29] (Fig 32) as being interdependent but mutually re-enforcing interests. The 1991 report "Caring for the Earth" (IUCN, 1991) defined SD as "…improving the quality of human life while living within the carrying capacity of supporting ecosystems" with three basic objectives:

1. To maintain essential ecological processes and life support systems;
2. To preserve biological diversity;
3. To use natural resources and ecosystems sustainably, or, where this is not possible, wisely, as in the case of non-renewable resources such as minerals.

[26] aiming to give successive generations no less capital than that enjoyed by the present generation and providing the same levels of consumption

[27] "…meets the needs of the present without compromising the ability of future generations to meet [theirs]"

[28] "…meeting needs in ways which deliver social progress, protection of the environment, better resource use, economic growth and employment by having a stable and competitive economy".

[29] The Johannesburg SD used a three-pillared approach to concentrate on present generation needs and addressing environmental damage rather than conservation of natural, possibly finite, resources for future generation's use, makes environmental protection marginally less important, when weighed against socio-economic development and develops the definition used in World Summit on Sustainable Development 2002

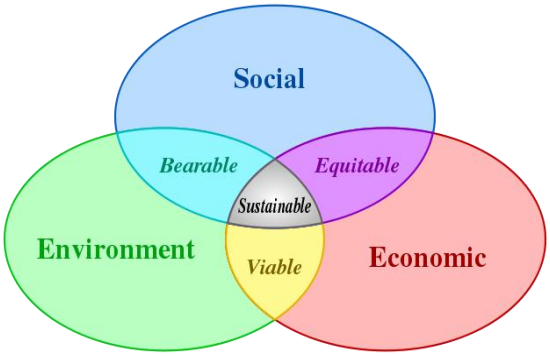


Figure 32 Sustainable Development (newworldencyclopedia.org, 2007)

Development and conservation have often been seen as conflicting because conservation was understood to be the protection of resources, growth in Gross Domestic Product (GDP) (a value index that combines the results of changes in throughput and utility) and the use or exploitation of these resources.

Sustainability seeks solutions that promote environmental health and restoration, social equity, and economic vitality by creating and maintaining the conditions under which humans and nature can exist in productive harmony and that permit fulfilling the social, economic and other requirements of present and future generations.

Whilst the Brundtland report is still viewed as a "...watershed in thinking on environment and development" (Sneddon et al, 2006) its definition of SD was problematic even though identifying the objectives of SD, i.e. reviving growth, changing the quality of growth, meeting essential needs for jobs, food, energy, water, and sanitation, conserving and enhancing the resource base, reorienting technology, managing risk, and merging environmental and economic decision making (UN,1987).

Winnpenny (1991:3) noted that "… the value and nature of capital stock to be passed on intact into the future is problematic". SD increasingly emphasised the interconnection with social and economic dimensions of development (Kadekodi 1992) with notions of S[R]D usually portrayed as a tri-dimensional concept, therefore highlighting the interface

between environment, economic, and social sustainability" (Bell, 2003; OECD 2001).

However, Sachs felt:

> "…current generations are dictating the world in which future generations will live as it is impossible to consult them about what sort of world and life-style they would either like or accept and can only summerise as to what the demographic circumstances will be, and whose needs or what needs."(Sachs, 2000)

It then begs the question "If basic needs whose definition of basic?" Basic needs differ markedly between the developed and the developing world and between European States. Basic needs have been defined those things that are necessary to sustain life, the minimum requirements of a community for a decent standard of life.[30] Food, clothing and shelter are vital needs, but so are economic security, social well-being and "quality of life". However, economic and social development should not be to the detriment of environmental quality. Putnam (1993) also holds that there is a link between an active social society and economic growth. There are also differing demands upon SD in relation to rural and urban society, not least in terms of transport, and the resilience of viable communities and economies in a range or rural setting including those in remote areas. RAs need to be considered in this and other respects.

3.3.2 Sustainable Rural Development

Although rural areas across the world vary markedly in terms of development, governance, ecology, economy and social structures, they do share some characteristics in relation to space and relationships with urban centres and the services they provide. Populations spatially dispersed often increase the cost and difficulty of providing effective rural goods and services, and agriculture is often the dominant or exclusive economic sector. Therefore the tax base is limited resulting in restricted or fewer opportunities than in non-rural locations for resource mobilisation thus posing major challenges for RD programmes.

[30] consisting of adequate food, shelter, and clothing plus some household equipment and furniture. They also include essential services provided by and for the community-at-large such as safe drinking water, sanitation, health and education.

SRD essentially encompasses much wider issues than solely GDP growth and integrates economic and social growth with environmental protection. However, the SD concept provides useful guidance on how economic development can be reconciled with protecting the natural environment and meeting social objectives. Strong sustainability holds we must live within world environmental and ecological limits but weak sustainability holds that humanity replaces the used natural capital with human-made capital.

Haughton and Hunter (1994) argued concepts of futurity, equity and environment must underpin the process of SD. But in order for rural communities to survive both socially and economically, rural economies sometimes need to be diversified and become less reliant on agriculture. Split into two approaches SRD can be guidance in facing the challenges in rural areas of supporting existing jobs and for future employment possibilities, economic growth, environmental protection and social development. Firstly, Sustainable Economic Development aims to give successive generations no less capital than that enjoyed by the present generation and provide the same levels of consumption and secondly, the sustainable use of resources and the environment.

The Organisation for Economic Cooperation and Development (OECD) uses regional typology, based on two Territorial Levels,[31] to identify as rural those local units (e.g. administrative areas) with a population density below 150 inhabitants per square kilometre. The EU developed a Nomenclature of Territorial Units for Statistics (NUTS)[32] which has been used for European Community legislation since 1988 but was only officially adopted in 2003 (EUROPA,2008). Within Europe rural areas vary significantly across Member States. European rural areas are in a transition as agricultural policies are reformed[33] to meet future challenges and more intense competition.

[31] The higher level (TL2) consists of 335 macro-regions while the lower level (TL3) is composed of 1,679 micro-regions
[32] see definitions: RURAL
[33] Common Agricultural Policy (CAP)

Bryden (2003a:29) states:

> "…rural areas now have negative rates of natural change (i.e. fewer births than deaths) and relatively high rates of out-migration especially of youth, the maintenance of rural populations almost everywhere is now dependent…on inward migration"

Most European rural communities aspire to achieve environmental, economic and social development to (1) maintain or increase standards of living, (2) maintain or increase their social capital (i.e. extended networks of mutual solidarity, shared beliefs, traditions and commitments to retain long-standing practices of daily life) and (3) protect and enhance their environment, both for themselves and for future generations.

However, many European rural regions face problems of decline from out-migration, ageing, a lower skills-base, lower than average labour productivity, isolation, lack of infrastructure and difficulties with public service provision, particularly in the most remote regions.[34] Whilst the primary sector i.e. agriculture, hunting and forestry still constitutes a source for population and employment in rural areas, in all European rural economies there is a growing importance for non-farming activities and farm diversification as farming incomes and employment opportunities decline.

> "Agriculture is no longer the backbone of rural economies. While agriculture has an important role in shaping rural landscapes in many OECD countries, its weight in rural economies is often low and declining. Currently, less than 10% of the rural workforce is employed in agriculture. Even accounting for the considerable increase in productivity, agricultures share of gross value added remains low."(OECD, 2009a)

Rural jobs are often lower paid, many requiring lower skills and education levels and leads to younger inhabitants out-migrating, for economic and social reasons, to towns and cities (Brown, 2009). RAs on land that is no longer agriculturally viable can provide better paid jobs, increase skills and help reduce youth out-migration.

Bryden (2003b) identified seven characteristics needed for healthy [sustainable] rural communities:

[34] 2008 Conference on Future of Rural Development policy and Rural Regions, Lillehammer, Oppland (N)

1. They are at least maintaining their population and within it a viable age structure;[35]

2. Have diversified their economic base beyond the primary sector;[36]

3. Both the physical and mental health of the rural population is as good as it is elsewhere;[37]

4. Value their history, culture, environment and have pride in their identity, to enhance quality of life, develop new economic activities and improve existing economic activities;

5. Have widespread property ownership, clear titles, relatively high rates of locally financed and initiate new small enterprise start-ups;

6. By public agencies working "bottom up" together towards common goals with an agreed value basis, have lively and democratic local government with reasonable fiscal and decision making autonomy;

7. Do their own development and not have it done to them by others;

Most of rural European areas now have negative rates of natural change, i.e. fewer births than deaths and relatively high rates of young out-migration and the maintenance of rural populations almost everywhere is now dependent on inward migration" (Bryden, 2003c).

The Assembly of European Regions Conference (2008) on Rural Development identified rural areas "…as the best places to live and spend holidays, but should also remain places to work and live and that RD policies should include all elements needed to offer the rural world a better future in all senses" (AER, 2008). In order to achieve SRD various initiatives must be set up. SD is not a single policy or plan incorporated into one department or function. It is a framework for decision-making

[35] Usually meaning they have a positive rate of net in-migration
[36] Maintaining or increasing employment rates in the face of primary sector jobs declining so that that poverty and unemployment rates are no worse than those in cities and larger towns
[37] Public health depends on socio-economic determinants.

to be used across all sectors and at all levels and each Member State of the EU has its own RD policies and strategies for drawing down SRD European Funding.[38]

Rural is more than just agriculture; it couples life styles, differing cultures and landscapes; often forming the basis for tourism and recreation and of vital economic significance for diversification away from agriculture, including forestry related activity. The EU's RD policy is about meeting the challenges faced by rural areas and unlocking their potential.[39] Economic development can make demands upon the environment, natural limited resources are used and pollution and waste by-products generated. Scruugs states "…development and the environment are not necessarily conflicting terms. Problems arise when the linkage between the two is managed unsustainably" (Scruggs, 1993:3).

Rural areas must also be places of business, commerce and living in order to have sustainable communities. The complementary relationship between SRD[40] priorities means practical trade-offs may be required so as not to restrict personal freedoms that may be contrary to social development.[41] Many people are attracted by the idea of living and/or working in rural Europe, provided that they have access to adequate services and infrastructures. One area for rural diversification is themed residential developments, i.e. growth focused around a particular form of activity e.g. RAs. It is possible that RAs can play a role in the development of new rural economies and communities and the sustainability of existing ones. Therefore there is a need to consider this and to what extent they can do so in ways which fit into RSD

The agricultural section of the community may receive an indirect benefit from a GA RA development when it adds to the local economy as a whole. But in relation to Airparks SRD can be achieved from developing local infrastructures e.g. roads and additional bus services etc., creating commercial and non-profit-making partnerships e.g. "Twinning" with other European rural areas with similar RA communities, by keeping the local schools open when young families move to permanent Airpark homes and reducing or off-setting negative environmental impacts. RA projects can

[38] European Rural Development policy 2007-2013.Council Regulation (EC) No 1698/2005 established by Regulation (EC) 1290/2005
[39] Council Regulation (EC) No 1698/2005 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD)
[40] *'European Union Sustainable Development Strategy'* 2001 revised 2006 and Lisbon Strategy 2005
[41] The Greenhouse Gas Emissions Trading Scheme Regulations 2005 SI 2005/925 as amended 2007 (SI 2007/465)

apply for national and local government or EU funding, e.g. under Leader Programmes[42] or European Structural Funds i.e. European Regional Development Funding (ERDF) and Regional Economic Strategies (RES) as illustrated at Siljan Airpark,[43] one of the case study Airparks examined in this research.

The ERDF defines the aims of SRD, the framework governing it. It contributes to improving the quality of life and the management of economic activity in rural areas, as well as the competitiveness of agriculture, forestry, the environment and the countryside.[44] Again airparks *may* have a role in fulfilling these priorities. Its priorities are to:

1. promote innovation and knowledge transfer;
2. stimulate enterprise;
3. ensure sustainable development, production and consumption;
4. build sustainable communities.

Siljan Airpark received EU funding to build an aviation museum and tourist attraction and local government funding to surface roads to join the Airpark with the village of Siljansnas and tarmac the taxiways within the Airpark. ERDF aims to strengthen EU RD policy and simplify its implementation.

In Chapter 6 I will discuss how RAs fit into SD and particularly RSD in the light of the findings of the research. In chapter 4 I set out the methodologies used to gather the data.

3.4 METHODOLOGIES LITERATURE

Reviewing literature and talking over the topic with a wide range of people, helped to develop suitable questions. "… [Questions are] the heart of research design…that directly links…the other components" (Maxwell, 2005a) establishing the research's

[42] The LEADER+ Programme focuses on micro-enterprise development in local private sector enterprises using local people.

[43] Lasse Nygard, LEADER representative, Leksand Kommune and Chairman of Leksand Municipality City Council and Parliament, Sweden

[44] Regulation (EC) No 1080/2006 of the European Parliament and of the Council of 5 July 2006 on the European Regional Development Fund and repealing Regulation (EC) No 1783/1999

feasibility, relevance and researchability, assisting in deciding the methodical approach to take and finalising the research design.

“Research may be undertaken for a number of reasons and [or] may serve many diverse aims” (Sarantakos, 2005:11a) and research methods vary according to the subject under consideration. Social science research is “...different from physical or natural sciences in that it deals with people and their behaviour...people are less predictable” (Veal, 2006:3a) and provided the foundation for reviewing methodology literature.

The choice of methodology for rural research may depend on what is under investigation and the kinds of questions that will be asked. P Levin holds that the researcher must be absolutely clear what methodology is being used and how it is used for [the] research to be successful (Levin, 2005) and methodological frameworks and methods should be matched when obtaining primary and secondary data.

Primary research data involves new information collected independently including participant observation, experiments, content analysis and often using questionnaires often using questionnaires and face to face interviews to obtain both quantitative and qualitative data. It is important to “...plan the primary data collection very carefully in advance, including such tasks as the establishment of necessary contacts with key individuals” (Flowerdew and Martin, 1997:7). Secondary research uses already published data, research and opinions e.g. in books, journal articles, newspapers, on the World Wide Web , television and radio documentaries and reports etc. that are relevant to the area of investigation (Veal, 1992:2b) saving both time and money and is essential for refining questions and assisting analysis of primary data collection.

Quantitative and qualitative methods are commonly depicted as separate choices for research methodology i.e. hypothesis; data collection and analysis; hypothesis testing and conclusion. However, they should refer instead to the type of data generated in the research process (Holland, 2007).

3.4.2 Quantitative Research can be define as “…research that explains phenomena by collecting numerical data that are analysed using mathematically based methods (in particular statistics)” (Creswell, 1994). Existing objective certainties can be measured and explained scientifically and commonly use data taken from statistical reports and surveys to give a framework for the research.

Bauer and Gaskell (2000:7) consider quantitative research as "...hard research which deals with numbers and uses statistical models to explain the data". Leedy and Ormrod (2001) hold it is often used for finding proof to either sustain or argue an idea or hypothesis or to describe a situation or event to answer the 'what'? 'How many'? and questions about relationships among measured variables to explain, predict and control phenomena.

3.4.3 Qualitative Research can be define as "studying the behaviour of individuals in all the complexity of their real-life situations" (Bawden, 1990) without mathematical models, and is concerned with obtaining people's own accounts of situations and events by reporting their own feelings and perspectives (Hakim1989). Such methods can be more suited to rural research as being more subjective and designed to look beyond numbers. Bauer and Gaskell (2000:7a) consider qualitative research "...deals with interpreting social realities [as] soft research". However, qualitative research will "... avoid or downplay statistical techniques and the mechanics of the kinds of quantitative methods used in epidemiology" (Silverman, 2006).

3.4.4 Mixed design Research involves the researcher using mixed data (numbers and text) and additional means (statistics and text analysis), both deductive and inductive and multiple forms of data collection to produce an extensive and rational report. Even though serving different purposes, these different research methods are often used together, (Veal, 2006b). Combining qualitative research with quantitative instruments can result in impact evaluations that make the most of their comparative advantages and though can describe, monitor, explore or investigate a research question/problem, could result in different kinds of descriptions. Cook (1995) feels that neither should be viewed as exclusive as both can contribute to all aspects of evaluative enquiries and can be successfully used together.

Both are valuable ways of collecting information and results can be more representative, especially as using a small case study sample size due to financial, time and child-care constraints. Generalisations made will be more valid and reliable, even though qualitative methods are what quantitative methods are not (Sarantakos, 2005b). Qualitative rural research usually includes some form of counting, therefore utilises quantitative methods too. However, while multiple methods enable triangulation using two or three different methods will not necessarily guarantee more rigorous results (Baxter and Eyles, 1996:505).

3.4.5 Case Study Research

The main difference between case studies and other research studies is that the focus is on the individual case to search for what is common, general and usually under natural conditions, so that the object can be understood in its own habitat and complexity (Stake, 1995). Yin (2003) holds a case study design should be considered when the:

(a) focus of the research is to answer “how” and “why” questions;

(b) behaviour of actors involved in the study cannot be manipulated;

(c) researcher wants to cover contextual conditions as they believe they are relevant to the phenomenon being researched;

(d) boundaries are not clear between the phenomenon and context.

Research by Soy (1997) identified six steps for organising and conducting qualitative case study investigation. These are to:-

1. Determine and define the research questions
2. Select the cases and determine data gathering and analysis techniques
3. Prepare to collect the data
4. Collect data in the field
5. Evaluate and analyse the data , and
6. Prepare the report

The methodology used in this research will be discussed in Chapter 4.

CHAPTER 4

METHODOLOGY

4.1 INTRODUCTION

This chapter identifies and discusses the various methodologies undertaken to deliver the aims set out in Chapter 1 and the research strategy used. The overall approach and using case studies involved both quantitative and qualitative research, and are discussed below.

A checklist (APPENDIX C) and mind-maps (APPENDIX D) highlighted areas that research questions should address e.g. people, thoughts and ideas ; who would be interested in the findings and why chose this research. The author's involvement with General Aviation, as a trainee Private Pilot, and an interest in SRD provided the initial interest for this area of research. The research questions should also be within the researcher's possibilities as "…they will tie you down to a domain and research path". (Sarantakos, 2005a:103-127).

4.2.1 THE RESEARCH DESIGN

The research used a mixed research design of quantitative and qualitative methods, though with a greater bias on qualitative techniques to investigate the impacts of RAs in the context of SRD, drawing upon primary and secondary data, available literature and two case studies.

Quantitative and qualitative methods are often designated as separate choices for research methodology. Holland (2007) feels they should instead refer to the type of data generated. Whilst qualitative and quantitative methods have different strengths, weaknesses and requirements, used together they can make the best use of available data.

A qualitative approach collects data by ethnographic and participatory methods. In rural research this methods offer a flexible interpretive process providing depth and detail, as recording people's attitudes and feelings rather than just analysing numerical data, to increase understanding of phenomena. Using a qualitative approach allowed interpretation and exploration of RA and non-RA residents' relationships, feelings and experiences, and make greater sense of information collected. It was applied using a phased, multi-method design (Robson, 2002)

involving analysis of case study documentation; recorded structured and semi-structured interviews and completed questionnaires from the identified actors and RA residents. This gave a broader understanding and comprehensive picture of the economic, social and environmental impacts of a RA on a local village community, and collected data had more validity and credibility.

Discussion groups, defined as:

> "organised discussions with a selected group of individuals to gain information about their views and experiences to obtain several perspectives about the same topic with an emphasis on questions and responses between the researcher and participants" (Gibbs, 1997)

are "…a way of collecting qualitative data, which involves engaging a small number of people [informally]…focused' around a particular topic or set of issues" (Wilkinson, 2004:177).

Quantitative methods are "...a classic social science research process developed over the course of the 20th century" (Turner, 2007:4). They are quantitative because they allow extrapolation of the results to the population, from which samples were drawn, to describe situations or events (Leedy and Ormrod, 2001), and not because collected data is quantitative. A survey or questionnaire is the most commonly used data collection method in social sciences (Sarantakos, 2005b). Information can be collected by written or oral questioning "...from or about people to describe, compare or explain … attitudes and behaviour" (Fink, 2003:1). The quantitative methods used in this research were based on random sampling and standardised questionnaires to measure the same type of information for all units in the sample i.e. non-Airpark residents or businesses, therefore allowing extrapolation of the results to the population from which the sample was drawn.

Deductive logic and inductive reasoning were used to develop hypotheses and propositions to draw conclusions about what RA non-residents had thought RA impacts would be, and what they now experience; to critically evaluate collected data and information, and to speculate whether RA development applications should include economic and social impacts assessments as well as EIAs. Popper's "all swans are white" test (Popper, 1935) tests propositions and forms part of social science's research critical reflexivity. In order to be scientific, a theory must be testable and results must either corroborate or falsify the theory. A proposition is

largely considered invalid if one observation does not fit with it, requiring revising or rejecting.

4.2.2 Primary and Secondary Data

Primary data is data derived from new or original research studies and collected at the source includes participant observation, questionnaires and interviews to obtain both quantitative and qualitative data. This research obtained primary data from case study RA residents and non-residents, local businesses and governmental agencies and LEADER representatives. Data topics were limited for the chosen "channels of impact" so that they could be analysed, interpreted and compared using acceptable qualitative research standards i.e. validity and reliability.

Secondary data is already published data, data collected by someone else or for a purpose other than the current one. Using secondary data conserves time and money and is essential for refining questions and assisting primary data analysis. To increase validity of the research interviews secondary data was obtained to identify possible RA "channels of impact."

4.3 CASE STUDY RESEARCH

Based on the objectives identified for this research a case study approach was also selected to enable collection of empirical data in an area where none currently exists. The two case study Airparks, Le Village Aeronautique des Lacs and Siljan Airpark will be discussed in greater detail in 5.1.3 and 5.1.5 below.

Case study research can be defined as:

> "an empirical inquiry investigating a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident or when multiple sources of evidence are used" (Yin, 1984:183).

Case studies are a qualitative descriptive form of research, with no less strict meticulousness than the rigour of quantitative methods to collect, examine and present detailed information about a single example, a class or social phenomena (Writing@CSU, 2011). Abercrombie et al (2000) think a single case study cannot provide reliable information about broader class and only may be useful in research preliminary stages, by providing hypotheses which could be systematically tested using a larger number of cases. However, even single-case studies "…are multiple

in most research efforts because ideas and evidence may be linked in many different ways" (Ragin, 1992:225).[45]

Case studies are useful for generating and testing hypothesis. It is advantageous to use multiple sources and techniques for gathering data or to describe phenomenon e.g. RAs in rural Europe. Their strengths enable a forceful way of interpreting research to others by describing experiences, processes and applicability to real-life, contemporary, human situations. In rural research case studies offer flexible interpretive processes and aim to increase the understanding of phenomena and provide depth and detail, as looking deeper, by recording people's attitudes and feelings, rather than just analysing numerical data. They are also valuable for generalising and testing for falsification. Using case studies, albeit only two, helped the researcher to determine the attitudes, perceptions and beliefs of RA and non-RA residents, Airpark Management, local businesses and local government agencies about an RA's local impacts. It was advantageous to be able to use multiple sources and techniques for gathering data on a real-life RA, and in its surroundings, to test economic, social and environmental impacts directly in relation to the phenomena.

Soy (1997) suggests six steps[46] for organising and conducting case study research. The first step establishes the focus which could be referred to over the course of study of RAs and SRD. This was done by ascertaining what questions to ask and determining the research's purpose, after conducting a Literature Review of SD, SRD and comparable residential alternative developments.

The second step to increase the validity of the research was the selection of case study RAs.

The third step was to determine data gathering. This research would obtain primary data from RA residents and non-residents, local businesses, governmental agencies and LEADER representatives using questionnaires, structured and semi-structured interviews and group discussions. Questionnaires for RA and non-RA residents, RA management and developers, local businesses and other key actors e.g. local government Rural Development Officers, Environmental Officers, LEADER representatives etc. and open-questions were designed. Secondary data would be

[45] Ragin, Charles C. (1992) '"Casing" and the process of social inquiry', in Charles C. Ragin and Howard S. Becker (eds.), What is a Case? Exploring the Foundations of Social Inquiry. Cambridge: Cambridge University Press

[46] i.e. 1.Determine and define the research questions, 2.Select the cases and determine data gathering and analysis techniques, 3.Prepare to collect the data, 4.Collect data in the field, 5.Evaluate and analyse the data , and 6.Prepare the report

obtained from local governmental agencies and other available published data, research and opinions from books, journal articles, newspapers, the World Wide Web and reports etc. relevant to the area of investigation (Veal, 1992:2). However, as already stated, there is little or no research on RAs generally, or more specifically, on their impact on local SD.

The fourth step was to collect the data. In the two case studies interviews and small discussion groups were conducted to explore attitudes and experiences of individuals, answering questions without using mathematical models.

The fifth step was to evaluate the primary data collected. Data analysis of primary and secondary data will be identified in Chapter 5 and findings discussed in Chapter 6 below.

The final step is to prepare the report.

Case study data weaknesses are:

- generally time-consuming to collect, organise and describe
- may only represent depth rather than breadth of information
- can be challenging because they usually involve numerous sources of data thus possibly producing large amounts of data for analysis.

Careful consideration of the objectives and purpose of this research should result in appropriate questions to obtain relevant and not unnecessary data as case studies are also valuable for generalising and testing for falsification.

4.4 Identification and choice of Case Studies

The reason for using case studies in this research was to achieve the greatest possible amount of information on the RA phenomenon and its economic, social and environmental impacts in relation to notions of SRD. This research selected two RAs in two different European countries as case studies, both operational for more than five years, situated within rural commercial forestry and near lakes for aviation activities.

The two case study RAs, Le Village Aeronautique des Lacs at Biscarrosse in South-West France and Siljan Airpark at Siljansnäs in mid-central Sweden were visited for 10 day periods and will be discussed in greater detail in 5.1.3 and 5.1.5 below.

They were chosen because they met the following criteria:

- A good prospect of co-operation from RA residents and non-RA residents
- A good prospect of co-operation from Local Government Agencies
- The presence of a local RD agency such as a LEADER Action Group or dedicated Rural Development Officer.
- Ease of access for the researcher

Other possible European rural RAs were excluded because of:

- Non-response to the researcher's initial correspondence
- Poor access for the researcher
- Unlikely co-operation from residential Airpark management or residents as reluctant to encourage discussions with local residents as not wishing to "stir up things which have been laid to rest"

Research would involve assessing economic and social behaviour trends within the RA's and local communities.

4.5 THE RESEARCH METHODOLOGIES

It is important to "...plan the primary data collection very carefully in advance" (Flowerdew and Martin, 1997:7). Here there is little existing quantitative data on RAs so in the early preparation stages of this research the author made contact with RA residents, management and developers worldwide, local government agencies, publicists, aviators and GA organisations and Associations to gather a range of quantitative data about RAs, their development and use.

4.5.1 Sampling

It is also important to choose a sample that will provide the most accurate information, as generalisability can be increased by strategic selection of those receiving questionnaires, or interviewed or attend discussion groups (Ragin, 1992:17-26). There are different methods for sampling i.e. systematic, cluster simple random and quota. The main reason for using case studies in this research was to achieve the greatest possible amount of information on the RA phenomenon and its economic, social and environmental impacts in relation to notions of SRD.

Selecting Types of Sampling for the Case Studies

Type of Selection	Purpose
1. Random Selection	To avoid bias in the sample.
a. Random Sample	To get a representative sample that allows generalising rural RAs or RAs anywhere.
b. Stratified Sample	To generalise for selected sub-groups within the population
2. Information-orientated Selection	To maximise the usefulness of information gathered from small samples or single cases. Cases being selected on the probability of their information.
a. Maximum Variation Cases	For obtaining information about the importance of various circumstances for case management and result e.g. cases are different in one dimension i.e. in size, use, location etc.
b. Critical Cases: having strategic importance in relation to the general RA phenomena	To achieve information that allows logical assumptions e.g. “if x is valid for this RA then it applies to all RAs (or proposed RAs).

Table 1 (JSW, 2011)

Random sampling was selected for non-RA residents’ discussion groups and selected sampling for local businesses, both utilising a mixture of questionnaires and open-questions.

4.5.2 Questionnaires

There are three main formats for questionnaires, self-determined, completed over the telephone or completed by the researcher (Frazer and Lawley, 2000). In-depth information was collected by random sampling and standardised questionnaires, in English and RA national languages (APPENDICES F,G,H,I,J,K,L) to measure the same type of information for all units in the sample i.e. RA residents, non-RA residents and local businesses. RA residents’ questionnaires were either hand delivered, put in mail boxes, or emailed and were given to discussion group participants. Using standardised questionnaires for RA residents, non-residents, Airpark Management and local businesses meant the research could be reviewed and compared and any researcher own bias be avoided as distanced from the people interviewed. Validity and reliability was ensured as the researcher was an

objective observer neither participating nor influencing. Questionnaires drafted were fairly lengthy as needing to cover a wide range of closed and open-ended questions to obtain data on actual local and regional economic impacts and attitudes and opinions on RAs social and environmental impacts. The aim was to deliver and collect completed RA questionnaires within the time spent there.

Questionnaires gave a broader understanding and comprehensive picture of the economic, social and environmental impacts of a RA on a local village community and data collected will have more validity and credibility. Statistics were obtained for data prior to and after the RAs becoming operational, in order to assist with the interpretation of data obtained from this research. For some statistical data an arithmetic mean scale of measurement was used, e.g. annual spend in local restaurants.

4.5.3 Discussions Groups and Interviews

Qualitative research involves talking to key stakeholders about how they see the wider economic, social and environmental advantages and disadvantages of RAs in the context of local SRD, things that cannot be easily measured. Appleton states that '...on-site interviews are one of the most accurate research methods' for obtaining in-depth information (Appleton, 1974:10). As part of the initial research key stakeholder meetings were pre-chosen and arranged prior to arriving in the area. Meetings with RA non-residents and local businesses were organised once in the field.

Discussion groups and interviews were undertaken using a digital recorder and written notes and were conducted in English in Sweden, and in French, with translation assistance, in France. Structured interviews were carried out with local businesses, government agencies and other key stakeholders to obtain statistical as well as qualitative information. Questions were divided into general, economic, social and environmental and were as open and projective as possible (APPENDICES K & L). Descriptive questions gave the opportunity for expanded answers and enabled gaining additional information. The researcher was careful to remain unbiased as a disadvantage of qualitative research is that sometimes it allows researchers to focus too closely on individual results therefore failing to make links to bigger situations, possible reasons or get guarded answers from participants.

Semi-structured interviews are conducted with a fairly open framework allowing for focused, conversational, two-way communication. They can be used both to give and receive information. Such interviews were carried out with the Bishop of Leksand, Leksand Parliamentary Chairman and LEADER representative and RA Management. Data was gathered in a friendlier more relaxed atmosphere, giving greater freedom for perceptions to be obtained as well as very detailed, though more time consuming and difficult to control. Detailed questions were formulated before the interviews using an interview matrix guide (Figure 33). This became the basis for more specific questions, which did not need to be prepared in advance, allowing flexibility to probe for details and discuss issues (APPENDIX L).

Interview Matrix Guide

Purpose to:

- Obtain specific quantitative and qualitative information
- Obtain general information relevant to the Airpark and local community

Benefits:

- Confirms what may be already surmised but provides the opportunity for learning
- Provides not just answers, but reasons for the answers
- may more easily discuss sensitive issues such as Airpark economic impact versus environmental impact

Figure 33 (JSW, 2011)

Interviews generated more openness as participants developed and expanded their answers, opened up new topic areas therefore allowing a detailed picture to be built up about their feelings. It was essential to record these interviews to be able to reflect and analyse the information over a period of time (Oppenheim, 1992), and go back for accurate translations

Duggleby (2005) holds discussion group data arises from one of the following: individual data, group data and/or group interaction data. (Onwuegbuzie, Jiao, and Bostick, 2004) endorse using “mini-discussion groups” with less than 6-12 participants if, participants have specialised experiences (Krueger, 2000). They should ideally last between 1-2 hours (Morgan, 1997). However, Rushkoff (2005) argues focus groups are often useless “…as often aiming to please rather than offering their own opinions or evaluations and with data often cherry picked to support a foregone conclusion.”

In this research discussion groups were conducted with non-RA residents and local businesses to obtain both quantitative and qualitative data using a digital voice recorder, written notes and short questionnaires. (APPENDIX J & K). This enabled a number of people to be reached in a relatively short period of time and was useful for obtaining information, attitudes and opinions and to discuss other relevant issues to validate evaluation results and formulate recommendations. Similar questions were used as in the RA residents' questionnaires to produce data which could be easily compared.

At LVA one of the contacts made during initial research offered to host the Biscarrosse non-RA residents meetings, provide refreshments and to circulate invitations to colleagues, acquaintances (APPENDIX P). In Siljansnäs the researcher was able to use space donated without charge at the Siljansnäs Sockenkontor Offices.

Careful planning assisted these successful meetings as two-way communication must be cultivated, interest maintained and wanted information gathered without researcher bias.

The researcher considered the following in order to achieve the best outcomes:-

1. To have a clear purpose about what the meeting was to accomplish.
2. Consider the size and composition of the group.
3. After establishing a time when most could attend, having let people know about it well in advance arrange a convenient time and place for the meeting.
4. Participants may require refreshments.
5. Plan and prepare questions that would be unbiased.
6. Plan a strategy to encourage discussions e.g. by preparing leading questions, asking opinions etc.
7. Beware of hidden agendas, participants might use the meeting to bring up their own concerns about the RA itself or its residents;

Similar questions were used, as in the RA residents questionnaires, to produce data and information which could be easily compared (APPENDICES J & K).

After initial first case study analysis hypotheses were made for RA “channels of impact” in the context of local RSD (APPENDIX E). There were:

1. Generally positive local economic benefits;
2. Positive social benefits where RA residents actively participated in community life;
3. Negative environmental impacts[47] were reduced or mitigated by RA residents’ actions and RA Management involvement in conservation group APAB.[48]

These were born in mind when conducting fieldwork at the second case study, Siljan Airpark, using identical questionnaires and interview and discussion group questions.

4.6 Data Collection Strengths and Weaknesses

Data collection strengths are:

- when questionnaires are hand-delivered this imposes an obligation to complete and return,
- discussion groups allow additional information, data, opinions and attitudes to be obtained,
- interviews allow additional data to be collected as interviews develop and also possibilities for later contact for additional data to be obtained.

Data collection weaknesses are:

- when questionnaires are emailed, even though accompanied by a covering letter and on a subject matter close to recipients’ hearts, completed returns cannot be guaranteed,
- discussion groups are sometimes side-tracked into other areas not being considered, unless effective researcher control is maintained can overrun allocated time slots;
- interviews need to be concise as allocated time will have been set aside by the subjects.

[47] noise and air pollution and carbon footprint
[48] Association de la Protection de la Faune et de l Flore du Born (Association for the protection of fauna and flora of [Parentis) en Born

4.7 DATA PROCESSING

While computer software advances have encouraged a more flexible and practical approach to qualitative analysis the researcher utilised manual methods as being inexperienced in analysis software packages.

At the end of each field study day memos had been made to record and keep fresh thoughts, ideas regarding question development and rectification of problems or obstacles to aid data collection. Questionnaires and questions asked in discussion groups included questions that required respondent self-analysis (APPENDICES J & K). The raw data collected was therefore already analysed to some extent and invaluable because people have more in-sight into their own lives and how the various RA impacts feature, interact and relate.

Research analysis followed a Miles and Huberman (1994) analysis method comprising three main components:

1. data reduction;
2. data display;
3. draw and verify conclusions, involving three main operations i.e. coding, memoing and developing propositions.

The raw research qualitative data e.g. interview notes and recordings, questionnaires etc. were consolidated, organised and coded to so that the data could be analysed and compared.

- Step 1 included transcribing the original notes, summarising key points and identify quotations to illustrate important points made in discussions, interviews or by respondents.

- Step 2 was organising key points in topic areas to enable easier comparisons. This was initially done manually by collating the information from questionnaire replies on a master questionnaire, with each Airpark in a different colour and then coded for ‘like’ responses. Sub-codes were used to denote nuances for responses that were similar, but not exactly the same.

- Step 3 was to list other discussion points brought up as also using open-ended qualitative research methods. It was important to separate out these

points prior to analysis as they may provide valuable insights into what makes RA similar or different from each other.

During analysis t propositions about some of RAs positive and negative impacts on local communities in their vicinity were developed.

These included:

1. Benefit local and regional economies
2. Cause “two-tier” pricing structures
3. Expand local social horizons
4. Increase pollution
5. Have very little local impact on non-RA residents
6. Assist localised bio-diversity

These propositions were used, after comparing case studies and collating data to draw conclusions. The researcher identified constancies and variations in respondents’ comments across the case studies using a dataset.

Using numerical data evaluation it was possible to identify links and assess the relationships between the RAs and local SRD.

RA case studies and data collected will be discussed in Chapter 5.

CHAPTER 5

RESIDENTIAL AIRPARK CASE STUDIES AND DATA ANALYSIS

This chapter introduces and sets the case study RA's in local context and presents the data collected.

5.1 THE CASE STUDIES

The two case study Airparks, Le Village Aeronautique and Siljan Airpark are similar in that they:

- are both in commercial forestry areas with some tourist infractures;
- are close to a large lake where aviation activity can take place;
- have used and developed existing airfield facilities;
- have local government agency support; have a wide residential base both in age and wealth;
- are a mix of self or professionally built properties;
- do not restrict membership to aircraft owners

They are dissimilar in that Le Village Aeronautique is predominantly a primary home development whereas Siljan comprises second homes.

5.1.2 Biscarrosse

Located in the Landes Department of Aquitaine (Fig. 35) in SW France (Fig. 34) Biscarrosse is one of the six municipalities of the Community of Communes of the Great Lakes (Fig. 36).it has a total area of 160.48km2, a population of 12,634 and density of 74/Km (INSEE, 2010a).

Figure 34 Physical Map of France (Tourizmmaps, 2011)

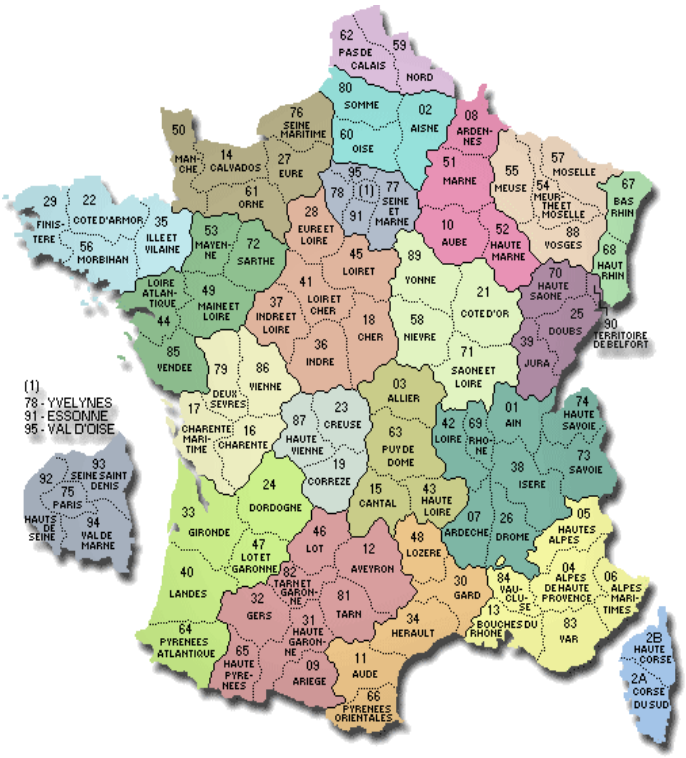


Figure 35 French Departments (map-france.com, 2011a)

At the turn of the 20th century Biscarrosse had begun to decline economically. It was becoming cheaper to import pine resin than to tap the local 'Golden Trees'. But in 1910, when Henri Fabre flew a heavier-than-air hydro-aeroplane off one of the lakes at Biscarrosse, just beating the Americans for the first-ever seaplane flight, this decline was reversed. In 1930, Aéropostale had a fleet of 17 flying boats and in 1933 Air France started their operations there with its first transatlantic flight to New York. However, their move to Paris, after Lockheed launched its land-based Constellation and they inaugurated the Paris-New York route in 1947 led to the local demise of the commercial hydro-plane industry.

Biscarrosse Lake has since become important for petroleum, as containing the largest crude oil reserves in France (eoearth.org, 2010), for its bi-annual international seaplane festival, the largest in the world and tourism. It comprises three distinct areas; 13,000 hectares of pine forest; 3,200 hectares of lakes and 4 km of beach frontage.

Figure 36 Map of Biscarrosse (Biscarrosse Tourist Office, 2011)

The town is home to the majority of the population and is the main centre of employment and the administrative and commercial center.

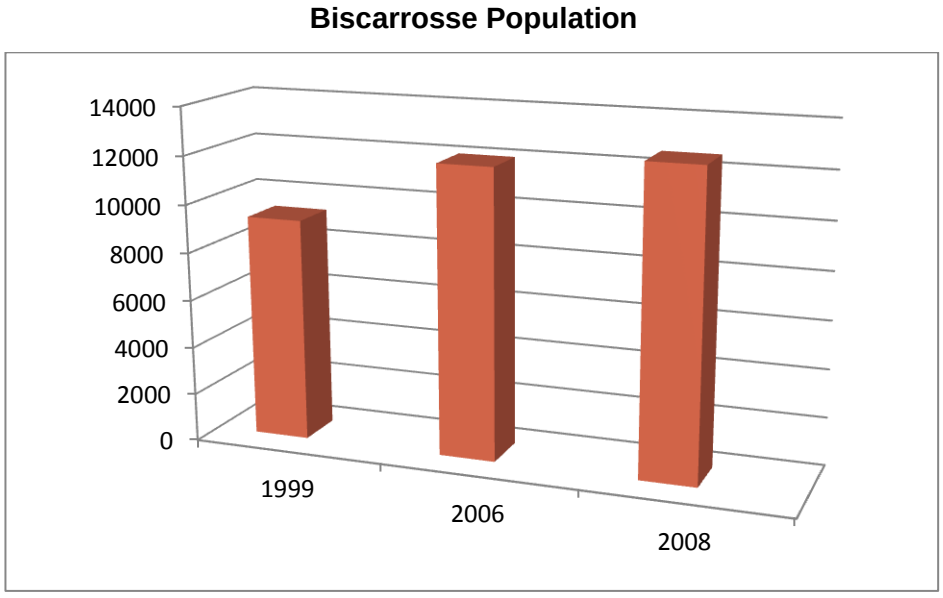


Figure 36b (INSEE, 2010b)

The beach area, Biscarrosse-Plage, 10kms away, is situated at the foot of the dunes has approximately 1500 inhabitants increasing in the summer months from a thriving tourist industry which also provides employment opportunities. Biscarrosse Lake has approximately 1500 inhabitants and is not only one of the few French seaplane bases but also a popular area for hunters and anglers.

Figure 37 Biscarrosse Town Centre (JSW, 2011)

However, Biscarrosse quietens from autumn till late spring and many restaurants and bars close (Fig. 37). Businesses include: builders and sanitaryware merchants; 2 garden centres; car dealerships; 2 supermarkets, several small independent retailers, 28 restaurants and bars; a cinema and library. Biscarrosse has 4 primary schools with nurseries within its three areas.

Property Status	1999	%	2008	%
Main home	4 064	48	5,741	47
Second home	3 885	45.8	5.930	49.2
Empty Homes	523	6.2	395	3.8
TOTAL	8,472	100	12,066	100

Table 2 Biscarrosse Residential Property Status 1999 – 2008 (INSEE, 2010c)

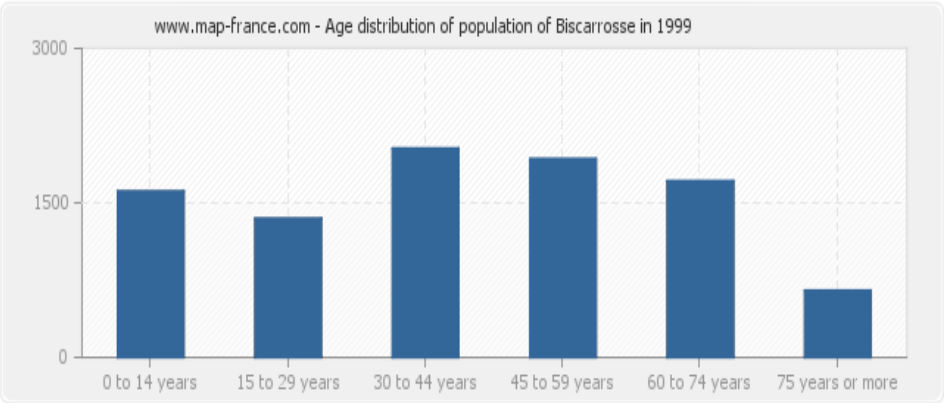


Figure 38 Biscarrosse Demography (map-france.com, 2008a)

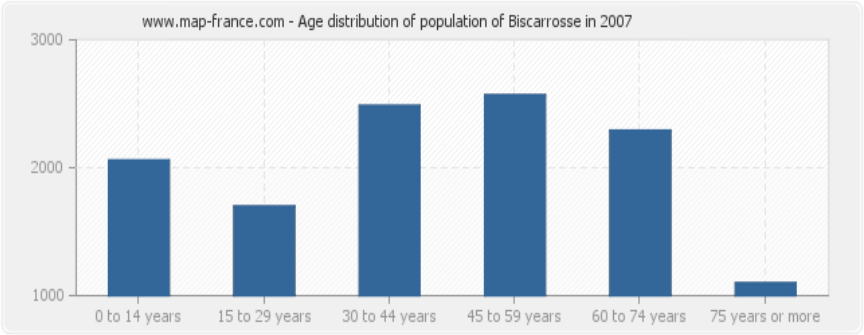


Figure 39 Biscarrosse Age Distribution (map-france.com, 2008b)

Unlike many other European rural towns, Biscarrosse has experienced a decreasing number of elderly (75+) inhabitants since 1999 (Figs 39 & 40). The area has had steady low unemployment with over 600 companies, shops, services, industries and crafts, plus 130 seasonal establishments (Fig41).

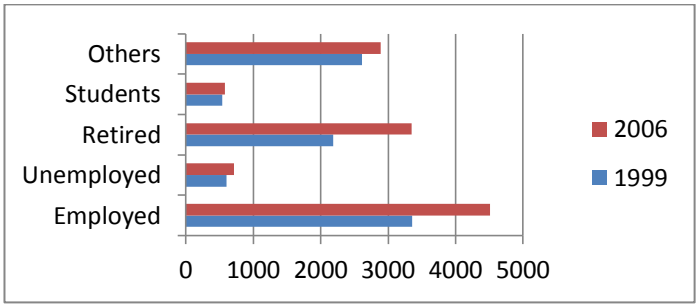


Figure 41 Biscarrosse Employment Status (INSEE, 2008c)

Apart from the town centre and beach there are four other main areas of economic activity; La Mountagnotte ,[49] Pastebuch,[50] Les Résiniers[51] and Laouadie.[52]

The Biscarrosse-Parentis aerodrome (Fig. 43), a public aerodrome since 1983, became the responsibility of the Communaute de Communes des Grands Lacs in 2004 and used by LVA, Biscarrosse Aeroclub, one of ten SEFA training schools[53] and visiting pilots.

[49] 81 Craft enterprises employing approximately 55 people situated between the town and LVA
[50] 8 commercial enterprises
[51] 6 commercial enterprises
[52] 17 commercial enterprises
[53] Service d'Exploitation de la Formation Aéronautique provides GA training for France's air-traffic controllers. The French Civil Aviation Authority incorporates aviation training into a

Figure 42 Christian Mahaud,[54] the author and Gautier Courribaut.[55]

Figure 43 Biscarrosse and Biscarrosse-Parentis Aerodrome (Lebas, 2008)

5.1.3 Le Village Aéronautique des Lacs (LVA)

LVA is situated between Biscarrosse and Parentis-en-Born, in the Aquitaine region of SW France. In June 2002 Jean-Francois Pascal,[56] a retired French Airforce jet pilot, was granted planning permission to develop a gated “over the fence” RA community, comprising of 63 plots on 31 hectares (Fig. 44).

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dedicated programme, as part of its air traffic control and operational duties for improving air transport safety and French Air Traffic Controllers can learn to flygratis.

[54] Directorate Générale des Services coordinates all the services of the Biscarrosse City Council, prepares and implements municipal decisions, develops and monitors budgets, procurement and records in connection with institutional partners.

[55] Director of the Department of Economic Affairs and Employment

[56] Jean Pascal tragically died in 2007 in an air crash in the French Alps

Having originally retired to Vendee Airpark which, whilst it had given him an insight into living in this type of environment, he wished it was in SW France. However, he used this experience and backed by a local businessman, Joseph Martin, to develop LVA close to the Latécoère Aircraft Company, known for its seaplanes. LVA utilises the 800m x 20m asphalt and 2 grass runways belonging to Biscarrosse-Parentis municipal aerodrome for GA, and Biscarrosse Lake for floatplane activities.

Figure 44 Le Village Aeronautique des Lacs (Lebas, 2011)

Properties are predominantly permanent homes and the majority of residents are French. However, there are currently 1 Irish, 1 Belgian and 2 British families. One property was built by Pascal as a show-home but all other plots were sold for ready for development. There are many different styles of property and one property is currently being built using recycled materials and with feather insulation boards (Fig.45).

Figure 45 Examples of self-built LVA properties (JSW, 2011)

Properties are linked by taxiways, which area also used by cars and access to the airfield is by pilot-activated remote-controlled gates. Currently there are 26 properties constructed, 10 under construction and 17 as yet undeveloped. Some of these plots have been purchased by the owners for retirement (Fig. 49).

Figure 46 LVA as seen from the Aerodrome (JSW, 2011)

Most residents self-maintain their aircraft and while some residents have new aircraft, or more than one (Fig. 47), the majority do not and some do not own any.

LVA aircraft are detailed in 5.3.1.8 below. There are some aircraft currently being home-built [57]and some residents not only build their own aircraft but also their homes and hangers.

Figure 47 A LVA Property (JSW, 2011)

Figure 48 An LVA kit house (HUF House) (JSW, 2011)

Many residents, contrary to popular belief, are not hugely wealthy. They are mainly middle-class and include pilots, computer specialists, lawyers, air traffic controllers, traders, consultants or self-employed entrepreneurs or retirees. Jean-Luc Langeard stated that as LVA taxiway width was restricted under planning approval this restricts aircraft size. Very wealthy aircraft owners often have larger multi-engine planes and have to take this into account if looking to live on a RA (Langeard, 2011).

[57] Jean-Michel Notaire, Cosy

LVA Residents Association owns and manages the aviation fuel pump on the Biscarrosse-Parentis airfield and maintains the communal areas. They have regular meetings and recently decided to develop RA facilities by building a Clubhouse, in addition to the Boules pitch.

Figure 49a Le Village Aeronautique des Lacs Site Plan (Valbisca.fe, 2011b)

In 2007 LVA joined with local hunters and fishermen to found the conservation group Association de la Protection de la Faune et la Flore du Born. The Association was formed to conserve the 350 acres of wetland habit surround the aerodrome and to convince local residents that it was better to keep the airfield for light aircraft and the exceptional environment than risk seeing the space turned into high density residential or small business areas.

Figure 49b Undeveloped plot at LVA (JSW, 2011)

The Delegation for Spatial Planning and Regional Action (DATAR) praised LVA for its innovative environmentally-friendly environment and for generating very little noise.

Whilst at LVA the author was lucky enough to be asked to fly to San Sebastian, in Spain, in a Cessna 337; practise “touch and go” grass landings in a Robin 46, and had a lesson in the RA’s PA 18/150 Piper Cub Amphibian. Great care had to be taken when landing and taxying on the lake due to the numerous small oil platforms.

Figure 50 LVA’s PA 18/150 Piper Cub Amphibian (JSW, 2011)

5.1.4 Siljansnäs

Siljansnäs, a village in itself and also a parish of 17 small settlements,[58] is situated on the west side of Lake Siljan covers an area of approximately 1.5km2 and is approximately 13km from Leksand town. It is part of Sweden's Siljan region, consisting of five municipalities, Orsa, Rättvik, Mora, Älvdalen and Leksand in the Dalarna Province (Fig.54), considered the "most Swedish" parish in the country (Farlex, 2011)· of mid-central Sweden (Fig. 51).

[58] Almo, Alvik, Backbyn, Björken Västra, Björken Östra, Flygbyn (Siljan Airpark), Fornby, Gassarvet, Hallen, Hjulbäck, Mon, Näsbyggebyn, Tasbäck Olsnäs, Lundbjörken, Klockarberg and Nybingsbo

Figure 51 Physical Sweden and Political Sweden (© Graphi-Ogre, 2011a,b)

It has a population of 1,268, mostly sparsely settled, and 333/km2 density (Statistics Sweden, 2010a). However when included within Leksand Kommune density reduces to 12.5/km.2 (Leksand.se, 2010a). The Leksand Municipality on the southern end of Lake Siljan covers 1226 km2 and approximately 15,388 inhabitants. Inhabitants increase considerably during the summer tourist season (Leksand.se, 2010b) (Figs. 52 & 53).

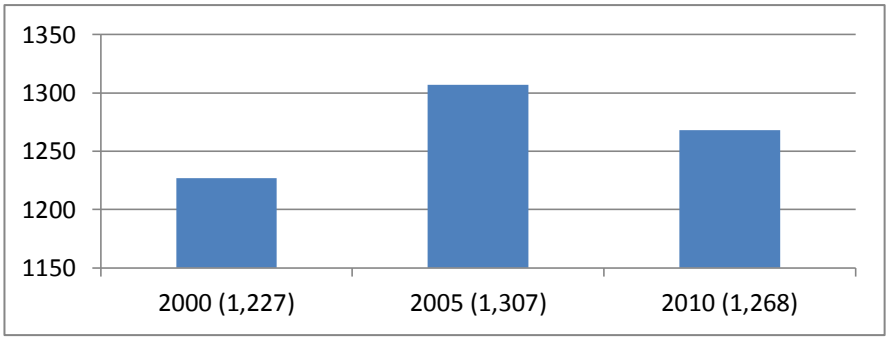

Figure 52 Siljansnäs population change over time Source: Statistics Sweden, 2010b

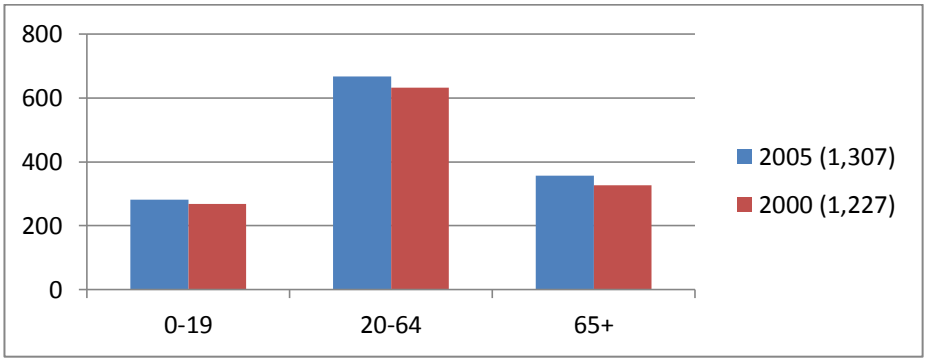

Figure 53 Siljansnäs demographic change over time (Statistics Sweden, 2010c)

Siljansnäs was an autonomous parish until 1974 but was amalgamated with 91 other small villages to form the Leksand Kommune. Siljansnäs Sockenkontor, established in 1995, is a non-profit politically independent organisation protecting Siljansnäs residents' interests and co-operating with government, businesses, the villages, Associations and individuals. Siljansnäs Sockenkontor increases residents' influence over planning and RD decisions which strengthens local democracy.

Until the 1960's most of Siljansnäs agriculture was small subsistence farms and very little forestry based production. The 1970's saw vast swathes of birch planted to boost the local economy and the number of small farms declined due to environmental, structural, social and economic factors.

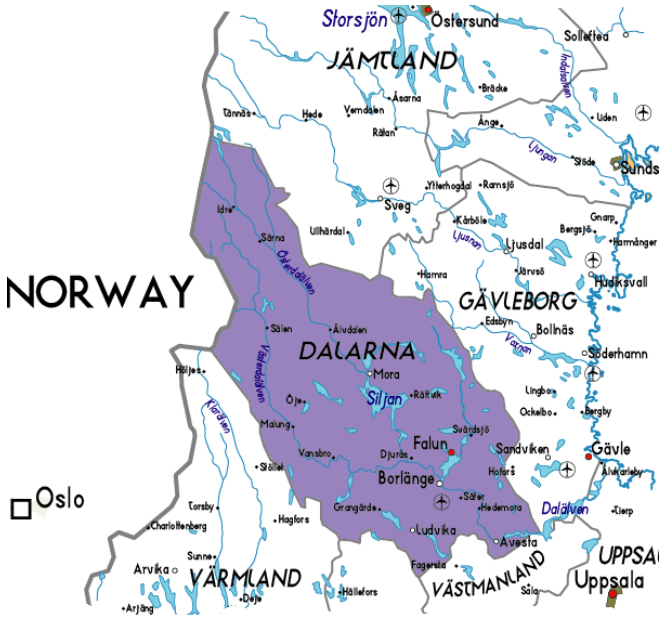

Figure 54 Dalarna (Graphi-Ogre, 2011c)

Local SRD policies influenced farm abandonment and when left untended agricultural land becomes overgrown and eventually forest. Today only a handful of farms in Siljansnäs remain. Its hilly woodlands and remaining agricultural lands provide habitats for wolves, bears, lynx and eagles.

Figure 55 Erkers Mobler, a Siljansnäs Furniture Manufacturer (JSW, 2011)

In Siljansnäs there is kindergarten and primary school education with secondary education available in Leksand. For the elderly there is a residential retirement home or assisted services for those wishing to remain in their own home. There are 77 companies, mostly only employ one or two people, collectively employing 248 people (Siljansnäs.w.se, 2011) not all of whom live in Siljansnäs. As well as dairy, sheep and arable farming and commercial forestry, local companies include

manufacturing; tourism; goods and service industries, research and information technology, Siljansnäs Aeroclub and SA.

There is one small supermarket, one newsagent which is also a ticket

Figure 56 Tempo Supermarket, Siljansnas (JSW, 2011)

agent for the SJ state railway; a 3 day-a-week coffee/gift shop; parish offices, community hall and church; football pitch; hotel, restaurant (operational since 1925), a pizzeria/kebab outlet run by Kurdish émigrés; several holiday cottages,[59] camping sites and a Nature Reserve tourist attraction. There are no bars apart from in the hotel; no doctor, dentist or medical facilities, no local taxi service and only limited bus services.

Siljansnäs is a very traditional area. Houses are painted in the famous red paint, Falu Red, produced from pigment taken from the old Dalarna Falun copper mines and mixed with linseed oil to produce a low-maintenance, environmentally friendly paint.

Swedish rural areas are increasingly in demand for recreation, living, tourism, etc. and a growing number of non-Swedish Europeans live all or parts of the year there. RAs are seen as one of Sweden's emerging development opportunities (Swedish Research Council, 2007a) and as rural villages in their own right.

[59] stugby

5.1.5 Siljan Airpark (SA)

SA, the most northern of Sweden's planned RAs, is situated on the edge of Siljansnäs Village and adjacent to Siljansnäs Aeroclub which was founded, in 1958, by Alm-Erik Ersson and local farmers on a field which was locally considered almost useless for farming. In 1974 the Aeroclub had given the airfield to Leksand Kommune in exchange for an asphalt runway. However, this was never constructed.

SA covers an area of 28.7 acres with 44 residential plots, sub-divided into residential plots including taxiways and roads 15.1 acres; the Aeroclub 9.9 acres; the runways and aircraft manoeuvring area 0.4 acres owned by Siljan AirPark Samfällighet[60] (SAPS) and the Biggles Café and Siljan Airpark Museum 3.7 acres.

In 2003 Carl Rönn began designing the Airpark, with 44 residential plots connected to an asphalt runway; an arena for the Siljan Flying Circus; a restaurant; office space and the flying club. He had been asked, in 2001, by Leksand Kommune in collaboration with the Swedish Royal Aero Club, Swedish Experimental Aircraft Association and Siljansnäs Aeroclub, to bring his highly successful "School@Work" project (APPENDIX M) to Siljansnäs. This European Social Fund project brought together Swedish teenagers, who were not going to school and teachers from five municipalities in Dalarna, to build full scale functioning replicas of World War I combat aircraft and in the process learn maths, English, technical drawing and other key subjects. He used these replicas in "Siljan Flying Circus" shows utilising the Aeroclub's facilities and 850m grass runway.

In 2003 detailed plans was submitted and approved. By December 2005 all plots were sold and revenue from the residential building plots financed SA's infrastructure and 850m asphalt runway.

With the first house and asphalt runway completed in 2006 SAPS took over the development, with Johan Hammarström[61] as chairman. European RD funds were obtained to construct the taxiways. In 2009, after SAPS taking over responsibility for the Airpark and runway maintenance, the Airpark officially opened. Further funding is being obtained from Siljansnäs Sockenkontor, Leksand Municipality and the EU to surface the road linking SA to Siljansnäs.

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[60] Siljan AirPark Landowners Association

[61] Johan has had a hearing impairment since birth but became a pilot and later involved in World Flight for Hearing and their project to fly around the world in a GA aircraft (a Diamond DA-42).

Figure 57 Siljan Airpark and Siljansnäs (Lind, 2011a)

Families from 11 European countries[62] use SA as second homes. Some properties are painted in the famous Swedish red paint others are more individually designed but still confirm to Airpark guidelines[63] and one over 100 years old has been transported to the Airpark (Fig 58). Currently 22 properties have been constructed, 7 in construction and 15 as yet undeveloped (Fig. 59).

[62] Sweden, Germany, Denmark, Finland, Israel, Slovenia, Turkey, Norway, Great Britain, Austria and Romania

[63] Buildings a minimum 4 meters from the edge of the property and have wooden outer walls, reddish colour roofing materials, garage doors a minimum of 6 meters from edge of the property, hangar doors shall be placed so the whole aircraft can be parked in front of the property. Maximum total height for properties 1 – 34 is 7 meters. Maximum total height for properties 35 – 40 is 5.5 meters. Total building area on property is 20 % of total property area.

Figure 58 Examples of Siljan Airpark Properties (JSW, 2011)

Figure 59 Siljan Airpark Site Plan (siljanairpark.se, 2011)

SA residents are members of the Flying Club and of the “Biggles Cafe” and Museum. Club facilities include a large timber clubhouse with an open fireplace, kitchen, TV, wireless internet, shower and toilet, simple cabins to rent for visiting aviators, camping area and separate sauna and shower block. The Museum, a local LEADER project opened in July 2011, is now a joint venture with the National Museum of Science and Technology in Stockholm, used to house some of Sweden’s early aircraft. It is envisaged that the Museum will attract between 40-50,000 visitors and had 700 visitors

Figure 60 Biggles Café and Museum Siljan Airpark (JSW, 2011)

on Kräftstjärtsväng (Crayfish Tail Swing) Day 2011 (Lind, 2011b). Museum visitors are given guided tours around SA aboard a vintage fire-engine.

Airpark residents come from all walks of life. Some are entrepreneurs or own businesses manufacturing fruit drinks, developing hybrid vehicle technologies, marketing renewable energy; others work in air traffic control, the oil industry, IT etc. or are retired.

Figure 61 Siljan Airpark's Norwegian Resident & Lancair (JSW, 2011)

While conducting the fieldwork the author was lucky enough to have a flight in one of the "School@Work" project planes used for "Siljan Flying Circus" displays as well as flights in a Lancair and the Aeroclub's Dynamic ULM.

Figure 62 The author (Lind, June 2011)

5.2 DATA ANALYSIS

This section summarises the statistical and open-ended responses to the questions contained in the questionnaires at Le Village Aeronautique des Lacs (LVA) and Siljan Airpark (SA), Biscarrosse and Siljansnas semi-structured discussion groups and interviews.

5.3 RA RESIDENTS QUESTIONNAIRE ANALYSIS

The responses from the RA permanent and second home owners questionnaires (APPENDICES F,G,H) are presented in statistical and diagrammatic formats representing the summary of the raw quantitative data collected and qualitative views expressed. Each section of the questionnaires are taken in turn with only the most salient questions and responses to this research detailed below.

The overall RA residents' response percentage was 41%. This comprised 62% for constructed main homes; 45% for constructed second homes; 27% for homes in construction and 15% for undeveloped plots (Table 4).

RA Residents % Response

AIRPARK	STATUS	ISSUED	RETURNED	% RESPONSE
Le Village Aeronautique des Lacs	Main Home	21	13	62
	Second Home	5	2	40
	Property in Construction	5	2	40
	Plot undeveloped	32	0	0
	Not yet released for sale	0	N/A	N/A
TOTAL		61[64]	17	28
Siljan Airpark	Main Home	0	0	0
	Second Home	22	11	50
	Property in Construction	7	1	14
	Plot undeveloped	16	3	19
	Not yet released for sale	0	N/A	N/A
TOTAL		44[65]	15	34
TOTALS		105	32	31

Table 4: Source: Surveys April & June 2011

[64] 2 residents each own 2 plots.
[65] Ibid

5.3.1. Airpark Resident Characteristics: General Data

This section presents the demographic data collected in the Airpark residents' questionnaires, including respondents' county of residence, age, average number of hours flown from each Airpark and total number of hours flown per annum by Airpark pilots and types of GA aircraft.

5.3.1.1 RA Nationalities.

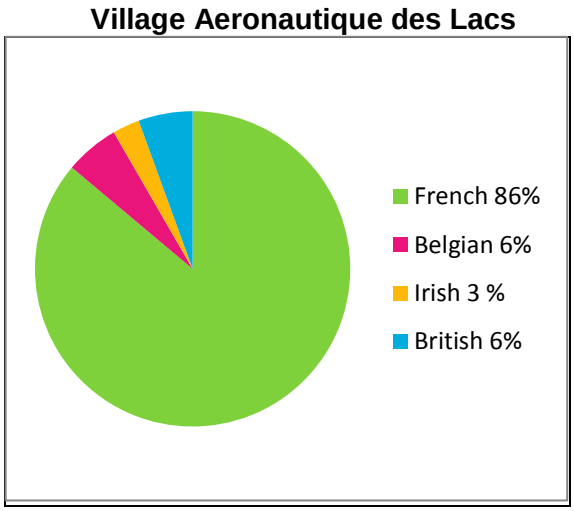
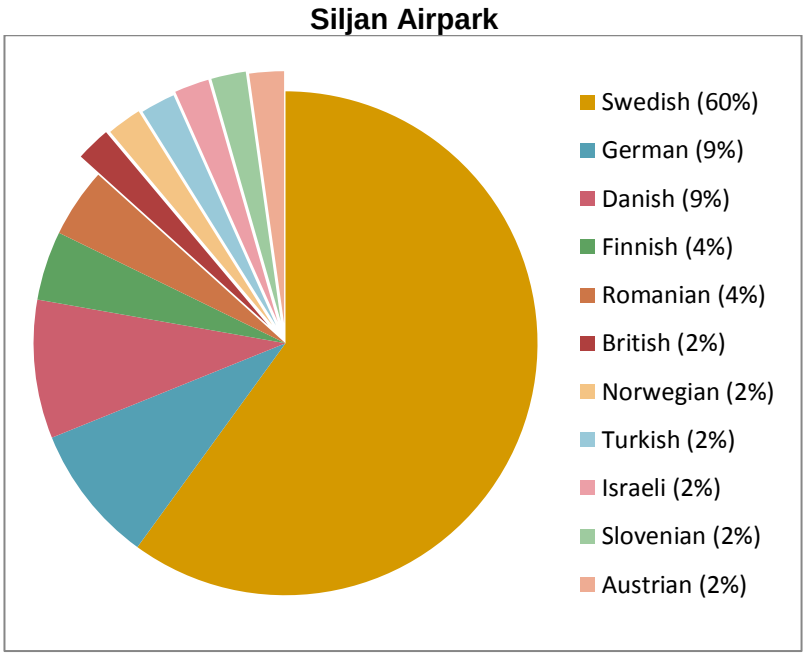


Figure 63 LVA Nationalities : Source: Survey April 2011



*1 British family owns 2 plots

Figure 64 SA Nationalities : Source: Survey June 2011

5.3.1.2. Respondents families age range

Ages in RA Respondent Households

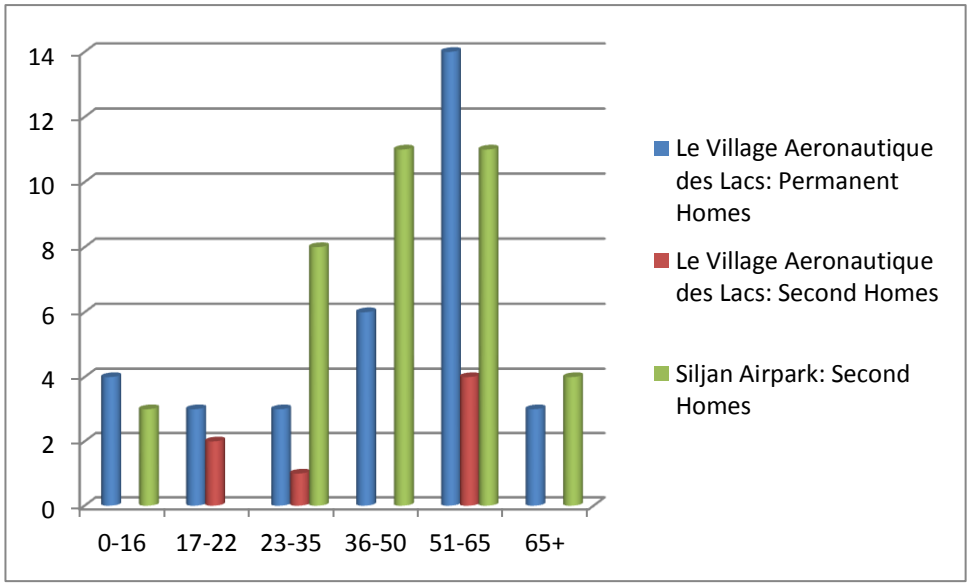


Figure 65 Source: Surveys April & June 2011

5.3.1.3 Home Ownership

RA Permanent Homes : Second Homes : Undeveloped Plots

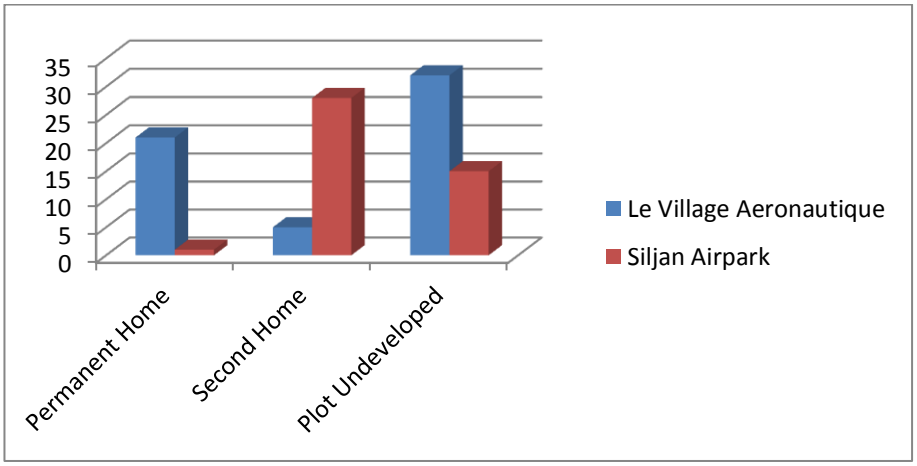


Figure 66 Source: Surveys April & June 2011

5.3.1.4 Average duration spent by second home owners at the RA. (Table XX).

Average Duration Respondent Second Home Owners Spend at the RA

AIRPARK	Average no. of days p.a.	Average length of	Minimum length of	Maximum length of

	spent at the Airpark	stay	stay	stay
Le Village Aeronautique des Lacs	54 days	14 days	4 days	28 days
Siljan Airpark	67 days	14 days	2 days	21 days

Table 5 Source: Surveys April & June 2011

5.3.1.5 Aircraft Ownership.

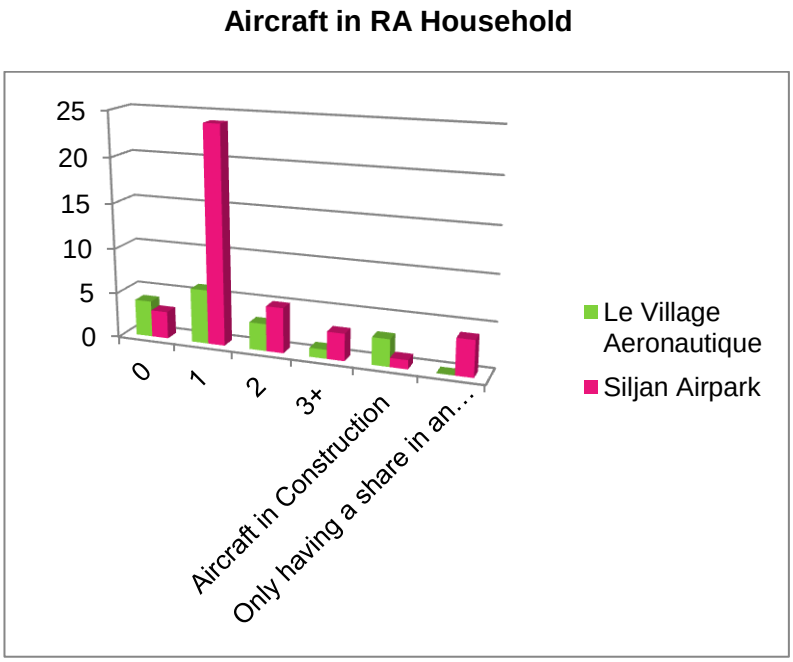


Figure 67 Source: Airpark Management Survey April & June 2011

5.3.1.6 RA respondent pilots or trainee pilots

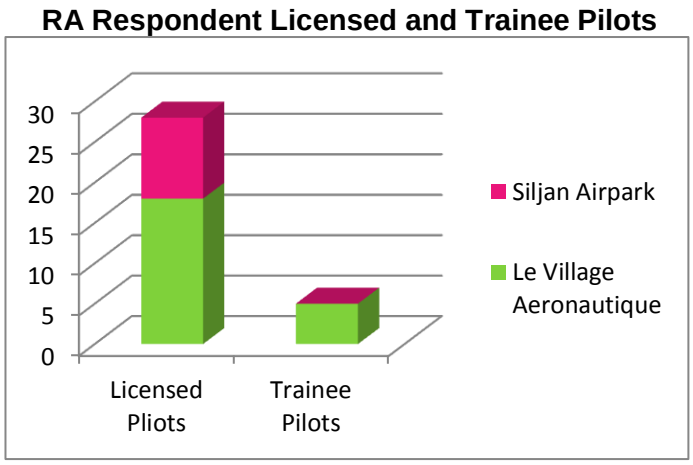


Figure 68 Source: Surveys April & June 2011

5.3.1.7 The average number of hours flown by RA residents per annum.

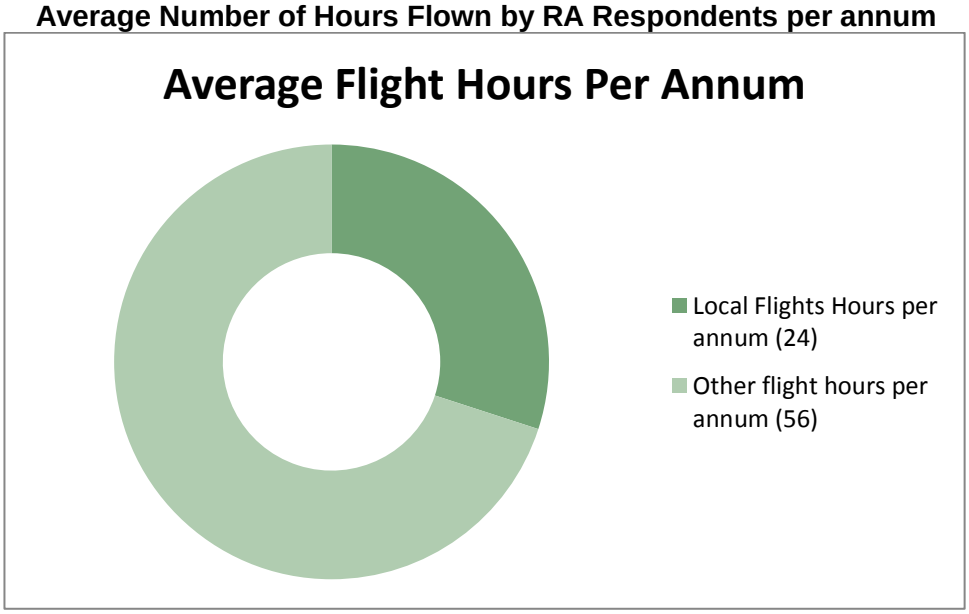


Figure 69 Source: Surveys April & June 2011

Average Number of Hours Flown by LVA Respondents per annum

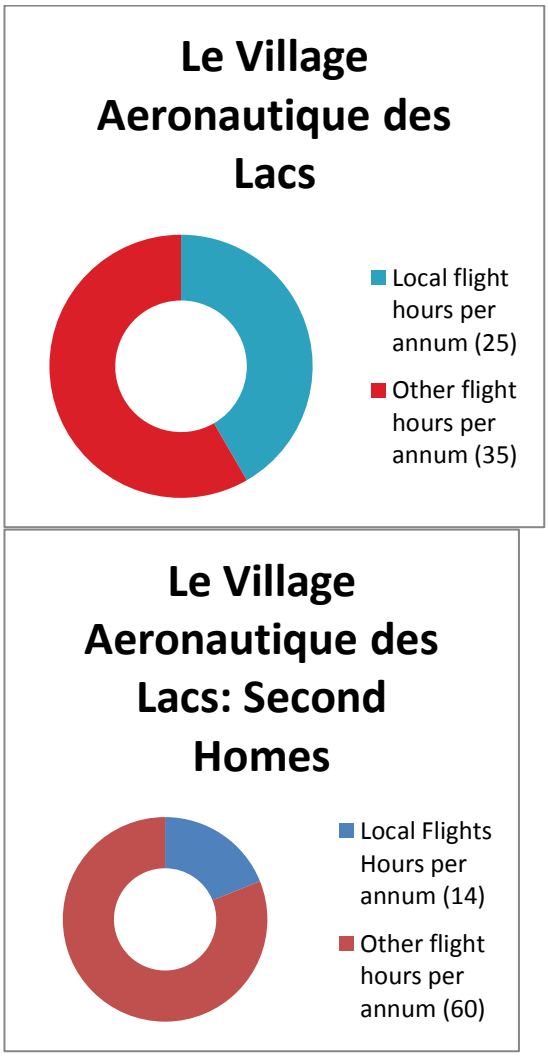


Figure 70 Source: Surveys April & June 2011

Average Number of Hours Flown by SA Respondents per annum

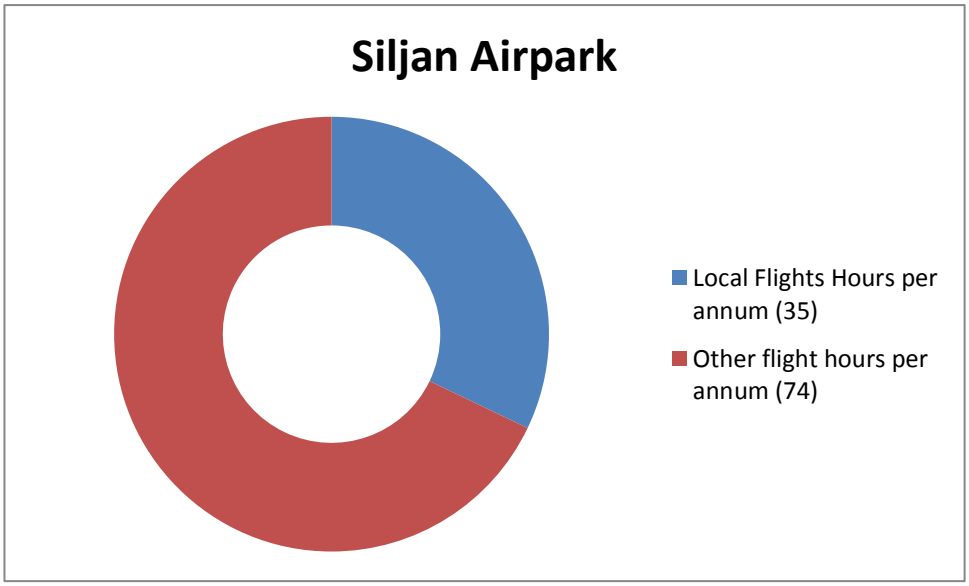


Figure 71 Source: Survey June 2011

5.3.1.8 RA GA aircraft

RA GA Aircraft

Le Village Aeronautique des Lacs	**Siljan Airpark**
PA28	
Robin 46	
Cessna 337	
Van RV7	
Microlight	
ULM	
Cosy	
PA 18/150 Piper Cub Amphibian	
BE33	
Cessna 206F Amphibian	
Stern87	
Jodel	
Vans RV7A	
Cessna 172	
Minibulle	
Beech Bonanza	
Stearman	
Adam RA14 Loisirs	
Diamond Star	
Piper Cherokee	

Bulldog
Stampe
Bucker Yungman

Glasair
Cessna 150
Jodel
SeeBee
Zephyr
Motor Glider
Cirrus SR22T
Lancair 320
Rans V9
Lanscair 360
Cessna 182
Celebrity
Bellanca
Jungster
Motorfalke
MT Gyrocopter
Jetstream Helicopter
Hot Air Balloon
Socata Rallye Commodore
SEP
Socata Rallye
Lancair IV
Steen Skybolt
Trike Pegagus
Cessna 206 Amphibian
Glasstar
Okant Fabrikat
Piper Aztec
Piper PA28
Rans V7
Rans V6
Binder Smaragd
Seamax
MF19
Beech Duke
Beech Jet

Table 6 Source: LVA and SA Residents Associations

5.3.2 Economic Impact

5.3.2.1 Airpark homes

RA respondent property architect

Siljan Airpark		Le Village Aeronautique des Lacs	
Local Architect	**Regional Architect**	**Local Architect**	**Regional Architect**
Ullanger	Ratvik	Biscarrosse	La Teste de Buch
Siljansnäs	Ludvika	Mont Marsan	Bordeaux
			Marmande

Table 7 Source: Surveys April & June 2011

Respondents' RA Home Construction

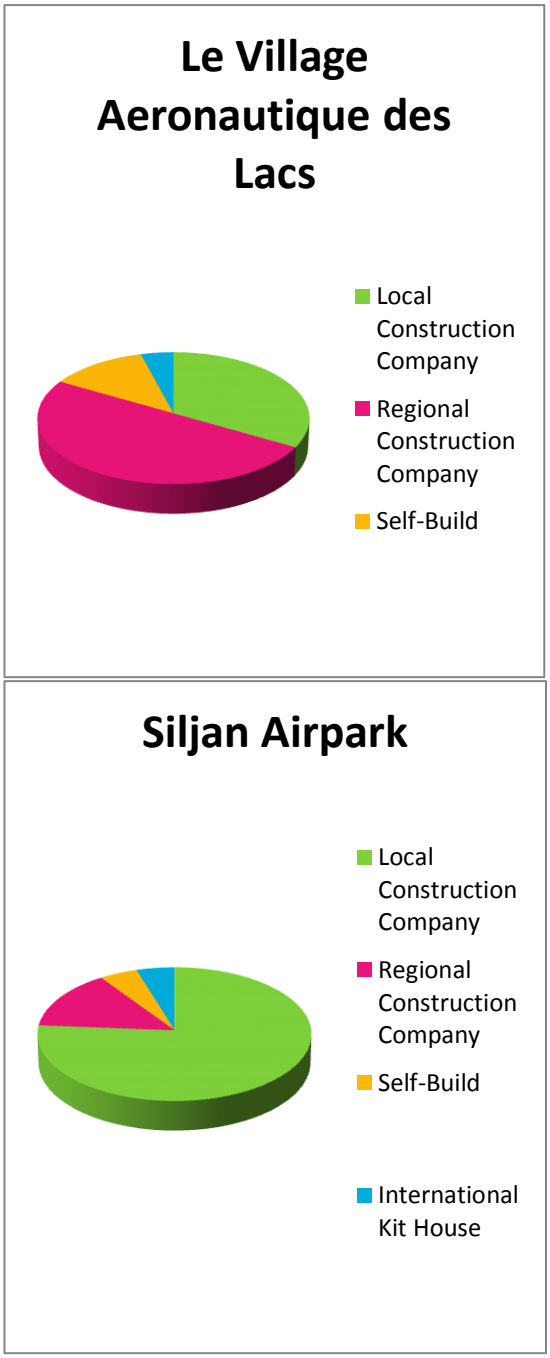


Figure 72 Source: Surveys April & June 2011

5.3.2.2. Building and landscaping materials

Sourcing of Building and Landscaping Materials

Siljan Airpark locally sourced materials	Siljan Airpark regionally sourced materials	Le Village Aeronautique des Lacs locally sourced materials	Le Village Aeronautique des Lacs regionally sourced materials
Building Blocks	Bitumen	Building Blocks	Bitumen
Roof tiles	Ceramic tiles	Roof tiles	Ceramic tiles
Timber	Hanger doors	Timber	Hanger doors
Concrete	Aluminium	Bricks	Windows
Chimneys	Plants	Plasterboard	Plants
Fireplaces	Roof struts	Pipework	Bricks
Paint	turf	Electric cable	Trees
Ironmongery	Trees	Insulation	Asphalt
	Asphalt	Eco-insulation	
		Swimming Pools	
		Turf	
		Plants	

Table 8 Source: Surveys April & June 2011

5.3.2.3. Local tradesmen used in RA property construction and landscaping.

Local Tradesmen Used

Siljan Airpark	Le Village Aeronautique des Lacs
Electricians	Electricians
Carpenters	Carpenters
Roofers	Roofers
Plumbers	Plumbers
Waste water and drainage	Waste water and drainage
Plasterers	Plasterers
Ground workers	Ground workers
	Decorators
	Bricklayer
	Landscape gardener
	Roof & Ceramic Tilers
	Swimming Pool

Table 9 Source: Surveys April & June 2011

5.3.3 Employment

5.3.3.1 Respondent local employment

RA Respondents Employed Locally

AIRPARK	Employed Full Time	Employed Part Time	Self-employed Full Time from Airpark Home	Self-employed Part Time from Airpark Home
Le Village Aeronautique des Lacs	3 Air Traffic Controller; Flying Club	1 Local Charity Shop	3	4
Siljan Airpark	1 (Hospital Consultant 1 month p.a.)	7 Siljan History Society; Siljan Aeroclub	0	0

Table 10 Source: Surveys April & June 2011

5.3.3.2 RA employment opportunities

Local People Employed by RA Respondents

AIRPARK	Full Time	Part Time	Seasonal	Capacity
Le Village Aeronautique des Lacs	0	6	5	Gardening, Cleaning, General maintenance, Swimming Pool maintenance
Siljan Airpark	0	2	2	General Maintenance, Gardening, Caretaking,

Table 11 Source: Surveys April & June 2011

5.3.4 Respondents' Expenditure Patterns

5.3.4.1 Main day to day and major items expenditure made locally

RA Combined Permanent & Second Home Day to Day Expenditure

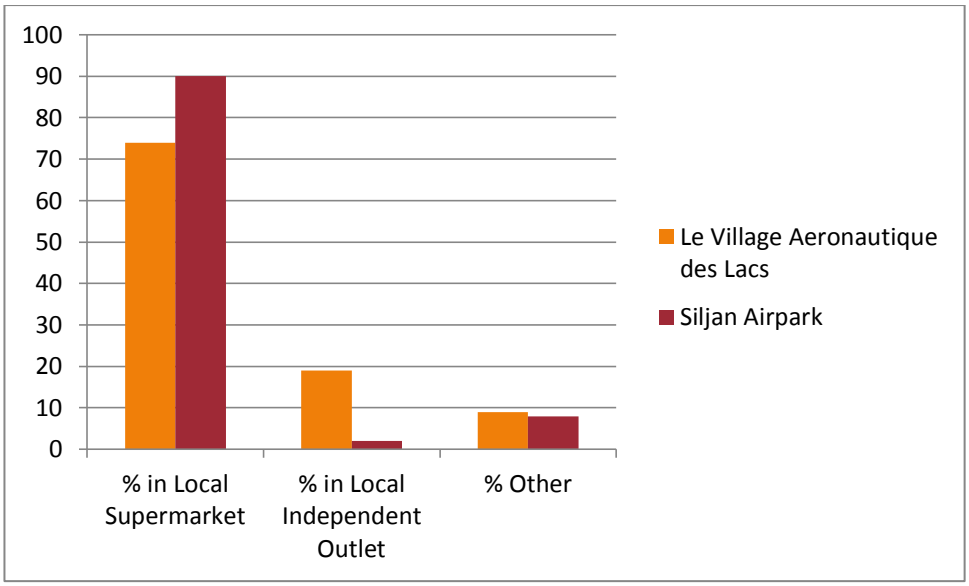


Figure 73 Source: Surveys April & June 2011

Second Homes Day to Day Expenditure

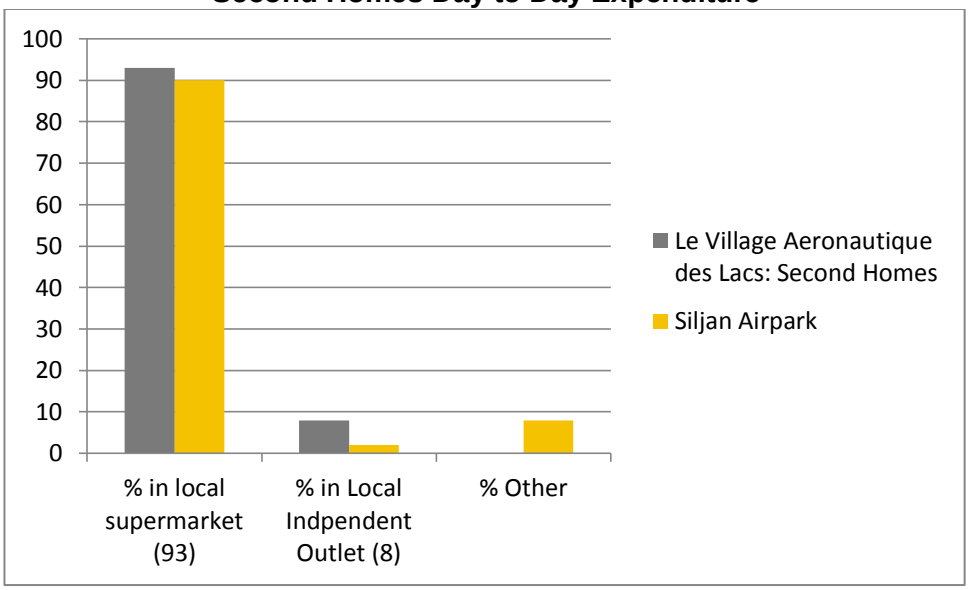


Figure 74 Source: Surveys April & June 2011

Combined Permanent & Second Homes Major Items Expenditure

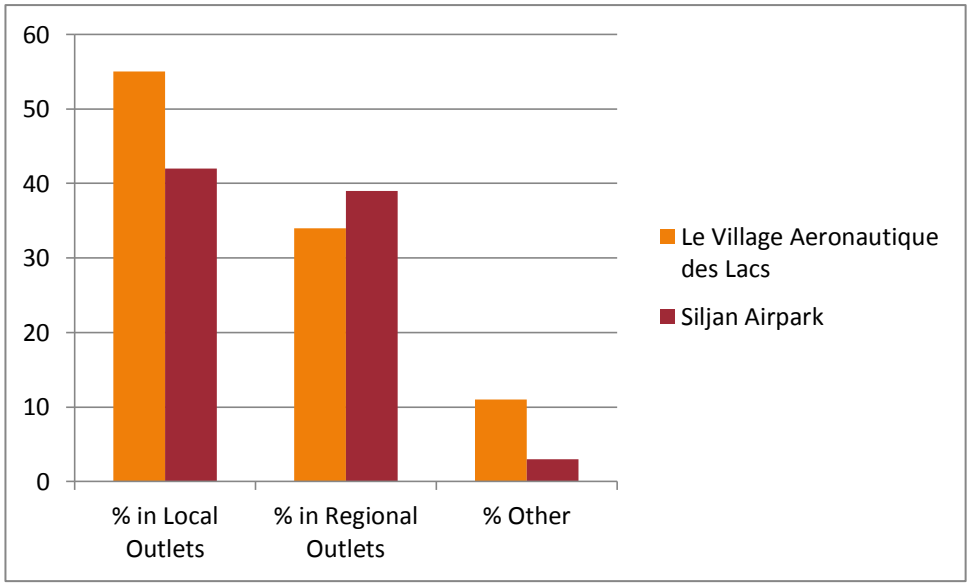


Figure 75 Source: Surveys April & June 2011

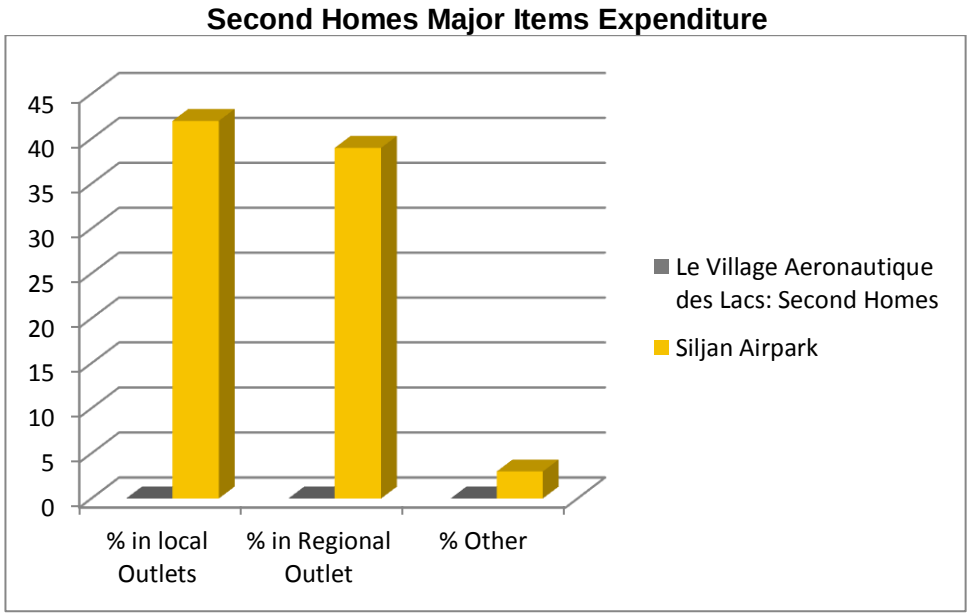


Figure 76 Source: Surveys April & June 2011

5.3.4.2 (a) **Examples of Expenditure: Siljan Airpark**

Local **Regional**

Siljansnäs	Leksand	Insjön	Alvik	Borlänge
groceries, fuel, electronic equipment, Electric appliances, furniture, cars, boats	groceries, books, fresh fish, furniture, Skiing equipment, boats	hardware, tools, cosmetics, spectacles, kitchen utilities, groceries	boats, lawn mowers	furniture, garden furniture

Table12 Source: Surveys April & June 2011

5.3.4.2 (b) **Examples of Expenditure: Le Village Aeronautique des Lacs**

Local **Regional**

Biscarrosse	Parentis-en-Born	La Teste de Buch	Pissos	Arcachon	Biganos	Bordeaux
groceries, furniture, bicycles, white electrical goods, cars	groceries, cars,	clothes	bio garden,	clothes	groceries, bicycles, clothes	furniture, decorative items, clothes

Table 13 Source: Surveys April & June 2011

5.3.4.3 Respondent households' average local spend (€)

Average RA Respondent Household Spend per annum on Locally Obtainable Goods and Services

	Le Village Aeronautique Permanent Homeowner	Le Village Aeronautique Second Homeowner	Siljan
Hairdressing & Beauty	345	10	45
Fitness Services	80	-	18
Medical & dentistry	451	-	396
Car serving & repairs	446	-	155
Aircraft servicing & repairs	1005	-	35
Clothes	752	75	115
Leisure equipment	367	25	94
Pharmaceuticals	166	35	21
Small household goods	175	10	117
Garden equipment & plants	165	30	55
Swimming pool maintenance	231	-	0
Restaurants	4720	940	157
Bars & Cafes	760	260	78
Cinema	380	45	39
TOTAL €	10,043	1430	1325

Table 14 Source: Surveys April & June 2011

5.3.5 Social Impact

5.3.5.1 RA Respondents Involvement in Local Clubs and Associations

Le Village Aeronautique des Lacs	Siljan Airpark
Sailing Club Flying Club Hunting Association Folk Dancing Association Folk Museum Amateur Football Club Swimming Club	Sailing Club Flying Club Local History Society Airpark Museum

Table15 Source: Surveys April & June 2011

5.3.5.2 RA Respondents household regularly using local library services

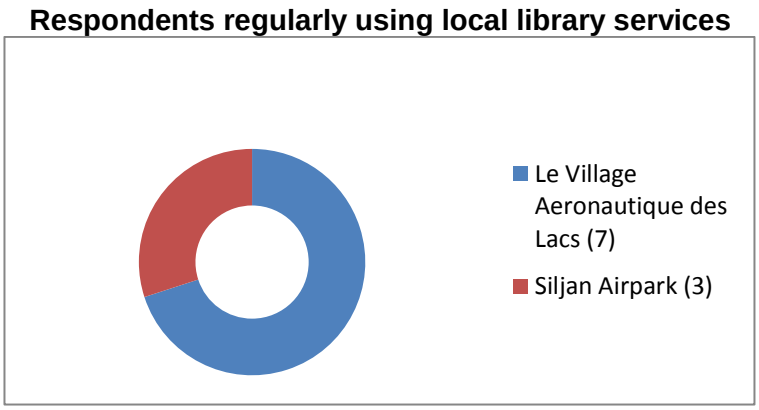


Figure 77 Source: Surveys April & June 2011

5.3.5.3 RA Respondents household regular attendance at a Local Place of Worship.

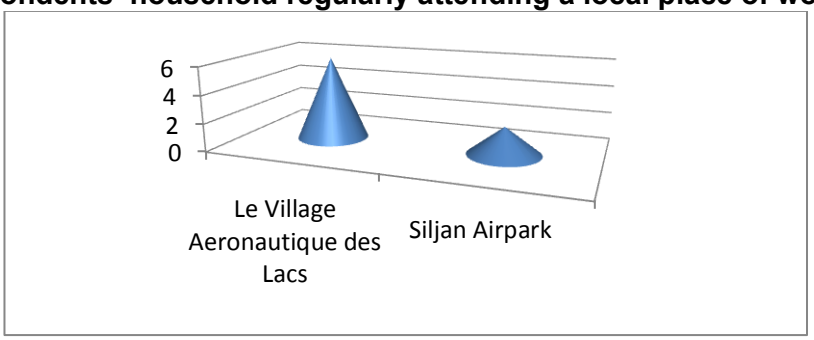


Figure 78 Source: Surveys April & June 2011

5.3.5.4 RA Respondents household participation in local politics

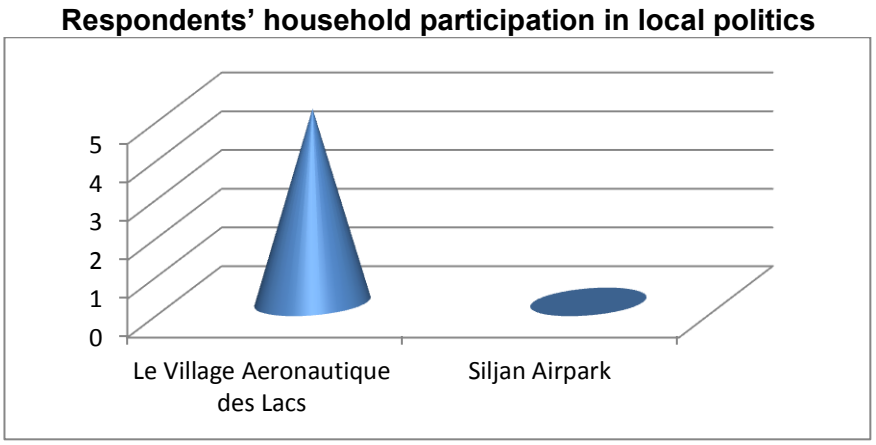


Figure 79 Source: Surveys April & June 2011

5.3.5.5 Did RA Respondents believe their household had integrated into local community life?

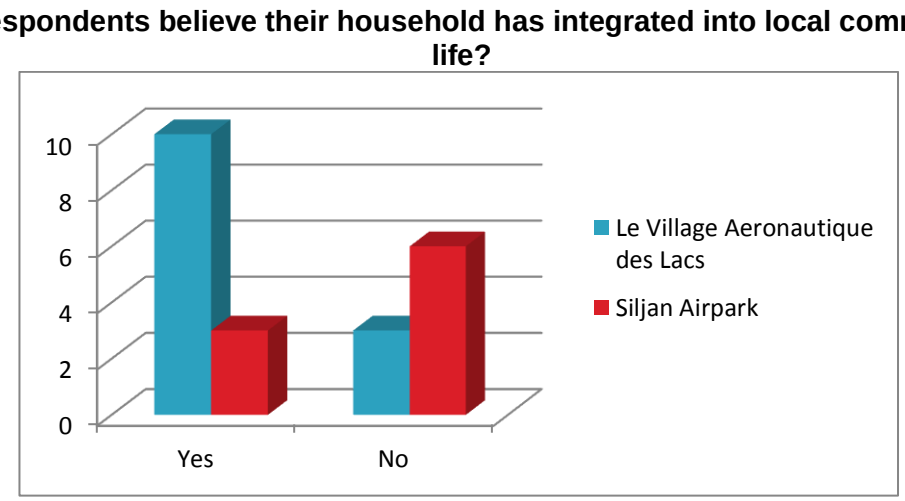


Figure 80 Source: Surveys April & June 2011

5.3.6 Environmental Impact

5.3.6.1 Aviation Noise Pollution

RA respondents' active aviation noise pollution avoidance

Noise Pollution Avoidance	Le Village Aeronautique des Lacs	Siljan Airpark
Not fly directly over homes even if not included in Noise Abatement	7	9
Fitted low noise propeller	2	1
Fitted special exhaust system.	1	0
Do not fly before 09.00	1	0
Not have extensive aircraft power checks prior to take-off	3	1
Not doing anything as not concerned	8	0

Table 16 Source: Surveys April & June 2011

5.3.6.2 RA Aviation Air Pollution avoidance:

RA respondents' active air pollution avoidance

Air Pollution Avoidance	Le Village Aeronautique des Lacs	Siljan Airpark
Aircraft only uses Unleaded fuel	2	3
Modified engine to use Unleaded fuel	1	0
Use bicycles when at the Airpark whenever possible	3	4
Not "tick-over" aircraft engines un-necessarily	1	3
Not carry out extensive aircraft power-checks prior to take-off	1	3
Electric Aircraft project	1	1
Not doing anything as unconcerned	1	2
Un-answered	10	0

Table 17 Source: Surveys April & June 2011

5.3.6.3 Carbon Footprint reductions measures included:

RA Respondents' active reduction in RA's carbon footprint

Positive Action	Le Village Aeronautique des Lacs	Siljan Airpark
Landscaping Garden	7	6
Planting additional trees	3	5
Using bicycles around Airpark	3	3
Not carry out extensive aircraft power-checks prior to take-off	1	3
Sorting household rubbish for recycling	0	6
Not concerned about carbon footprint	2	0
Un-answered	8	3

Table 18 Source: Surveys April & June 2011

5.3.6.4 Bio-diversity at LVA responses included:

RA respondents' active contribution to bio-diversity

Positive Action	Le Village Aeronautique des Lacs	Siljan Airpark
Replacing trees taken down during construction or blown down in storms	5	5
Planting additional species	5	5
Landscaping Gardens	7	9
Do not use artificial fertilisers	3	0
Use nemotodes instead of insecticides	2	0
Leave parts of gardens undeveloped	3	0
Construct bio-climatic or Eco-home	1	0
Use alternative insulation materials	1	0
Use alternative heating sources to gas or oil	1	0
Grow vegetables to reduce car journeys to shops	3	0
Utilise salvaged materials during construction and landscaping	1	0

Made positive decision not to have a swimming pool	2	0

Table 19 Source: Surveys April & June 2011

5.3.7 Limitations

Where questionnaires were emailed or left in post boxes there was no guarantee of return. Emailed reminders were posted on the SA on-line Forum. The researcher's host family at LVA collected and posted on questionnaires completed after the researcher had returned England.

5.4 Non-Airpark Resident Discussion Groups

In both Biscarrosse and Siljansnäs two groups of local non-Airpark residents were organised, 4 & 5 and 6 & 5 participants respectively, using questionnaires and semi-structured discussion (APPENDIX J).

This section presents the summary of the raw quantitative data collected, with results presented in a variety of formats representing the most salient or common responses to the questions posed and qualitative views expressed. Open-ended discussion responses have been grouped into categories with similar responses and then prioritised based upon frequency of mention.

5.4.1 Characteristics: General Data

This section presents the demographic data collected in the non-airpark residents' questionnaires.

5.4.1.1 Average size of participants household.

Number of People in Participants Households

Biscarrosse	3
Siljansnäs	2.4

Table 20 Source: Discussion Groups April & June 2011

5.4.1.2 Ages in Participants families covered a wide age range, 1 to 72 years of age

Ages of Participants Families

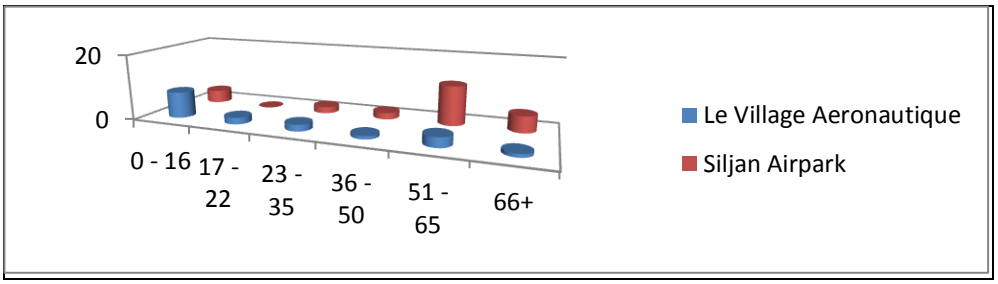


Figure 81 Source: Discussion Groups April & June 2011

5.4.1.3 Average Years Participants Resident in Biscarrosse/ /Siljansnäs.

Average Years Resident in Village/Town

Village	Years
Biscarrosse	25.5
Siljansnäs	26.0

Table 21 Source: Discussion Groups April & June 2011

5.4.1.4 Did participants' families know RA Residents, socially or otherwise

Village	Yes	No
Biscarrosse	2	7
Siljansnäs	2	9

Table 22 Source: Discussion Groups April & June 2011

5.4.1.5 Economic Impact

5.4.1.5.1 Did participants know anyone employed at the RA?

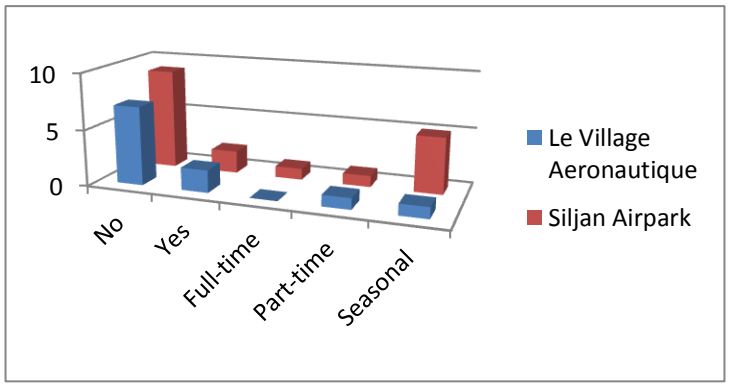


Figure 82 Source: Discussion Groups April & June 2011

5.4.1.5.2 How are those persons employed?

Airpark	Le Village Aeronautique des Lacs	Siljan Airpark
Full-time		Pilot in Flying Circus and Maintenance & Groundsman
Part-time	Communal grounds maintenance	Flying Instructor and Aircraft Technician
Temporary/Casual	Gardener	

Table 23 Source: Discussion Groups April & June 2011

5.4.1.5.3 (a) Open-ended positive economic responses for having a RA in the local vicinity included:

Biscarrosse	Siljansnäs
Upgrades local standard of living.	Airpark residents are not just retirees[66]
A "better class" of Biscarrosse residents.	More people to spend money in local shops and attractions.
Brings money into the local economy.	Increases the local population.
Extra property taxes means a larger municipal purse for spending on infrastructure, projects, etc.	Good for local taxes as means a larger local government purse for spending on infrastructure, projects, etc.
Creates local employment opportunities	As an attraction in itself and the museum brings Swedish and International tourists.
A new sea-plane flying school facility	Will be good for the local schools when Airpark residents become permanent residents.
Brings film projects to the area	More people means keeping local services.
Residents visit local attractions and exhibitions	Business networking.
	Has revitalised local businesses e.g. garage re-opened; taxi service re-established.

Table 24 Source: Discussion Groups April & June 2011

5.4.1.5.3 (b) Open-ended negative economic responses to having a RA in the local vicinity: One Biscarrosse participant stated that "Airpark residents must not live as a self-sufficient enclosed community"

[66] Swedish state pensions are paid by the local Kommune and not by national Government.

5.4.1.6 Social Impact

5.4.1.6.1 (a) Participants open-ended positive social responses for having a RA in the local vicinity included:

Biscarrosse	Siljansnäs
It is prestigious for Biscarrosse.	Promotes better understanding between people of other countries and cultures.
Brings film projects to the area	Events and attractions for local people to attend.
RA has attractive and well-kept properties.	Expands peoples' horizons.
A new sea-plane flying school facility	Puts Siljansnäs "on the map" = inclusion.

Table 25 Source: Discussion Groups April & June 2011

5.4.1.6.1 (b) Participants open-ended participants negative social responses for having a RA in the local vicinity: One Siljansnäs participant stated that the RA "provided a source for local gossips and complainers".

5.4.1.6.2 Participants open-ended responses regarding RA integration into local community life included:

Have RA Residents' integrated into the local community?

Biscarrosse	Siljansnäs
The Airpark is a member of APAB[67]	The Airpark website publishes local community and Airpark events
Some Airpark residents are involved in local Clubs and Associations e.g. Sailing Club, Flying Club, Folk Dancing Association, Folk Museum, Amateur Football Club, Swimming Club and gyms.	Some Airpark residents are involved in local Clubs and Associations e.g. Sailing Club, Flying Club, Local History Society, Airpark Museum.
There were no events held within the Airpark	One of the Danish Airpark resident is a Doctor and works for one month each year in the local hospital unpaid.
Some airpark residents did provide their aircraft for open-days at the Biscarrosse-Parentis Aerodrome.	Airpark residents socialise with local people who have similar interests e.g. ski-ing, music, art etc.
	Cross-country ski-track circuit created around Airpark perimeter during winter which was open to Siljansnäs general public use
	Airpark regularly holds "Fly-ins",[68] Flying Circus events, Midd-sommer and Halloween parties and other events to which Siljansnäs residents are welcome.

Table 26 Source: Discussion Groups April & June 2011

[67] Association de la Protection de la Fauna et La Flore du Born
[68] National and International Open days for visiting aircraft

5.4.1.6.3 Does the local community generally regard RA residents as “outsiders” or not?

Response: It was generally felt in both communities that anyone new is treated as an outsider.

5.4.1.7 Environmental Impact

5.4.1.7.1 Responses to perceived impact of the RA’s aviation activities on the local environment:

Participants perceived impacts of RA aviation activities on the local environment

Airpark	Noise Pollution	Air Pollution	Carbon Footprint	Aircraft Accidents
Le Village Aeronautique des Lacs	1. more noise from military aircraft[69] 2. Noise Abatement procedures are being followed 3. No night flying occurs 4. not concerned	1. No local concern as thought too little to be of any impact	1. No local concern. 2. Too little to be of any impact. 3. Landscaping of Airpark grounds and around houses helps to reduce carbon footprint.	1. Not concerned as no flying takes place directly over Biscarrosse 2. No more risky than driving a car 3. Less aircraft accidents than cars, motor bikes and lorries
Siljan Airpark	1. Noise Abatement procedures are being followed 2. Glider towing aircraft has had engine replaced with a quieter	1. Not much more than from the Aeroclub and flying school to be of local concern. 2. Flying is quicker than a car so less pollution	1. No idea. 2. None 3. Unleaded aviation fuel is cleaner than unleaded car fuel	1. No people or property injured in the 2 aircraft accidents. Though not known if RA residents or visiting aircraft using the Aeroclub

[69] Cazaux military airfield and the nearby Le Centre d’Essais de Lancement de Missiles (CELM) test launches French military rockets and civilian rockets used for atmospheric studies.

	one. 3. No night flying occurs			facilities.

Table 27 Source: Discussion Groups April & June 2011

5.4.1.7.2 (a) Participants open-ended positive environmental responses for having a RA in the local vicinity included:

Participants' positive environmental responses to having a RA in the vicinity

Biscarrosse	**Siljansnäs**
Airpark development has not degraded the local forest and shrub-land areas	Opened up the landscape
Not had any effect	Aircraft more fuel efficient than cars for long distance visitors and Airpark residents
Well-kept grounds	Gardens are being planted with different trees to replace forest birch trees removed during construction
Gardens with plants, trees and ponds	

Table 28 Source: Discussion Groups April & June 2011

5.4.1.7.3 (b) Participants open-ended negative environmental responses for having a RA in the local vicinity included:

Participants negative environmental responses to having a RA in the vicinity

Biscarrosse	**Siljansnäs**
Trees had to be removed for property construction	A bit more noise and air pollution
Only environmentally negative if Airpark expands	
A bit more noise and air pollution	

Table 29 Source: Discussion Groups April & June 2011

5.4.1.7.4 Participant responses to perceived Airpark contribution to local bio-diversity.

Participants perceived Airpark contribution to local bio-diversity

Le Village Aeronautique des Lacs	**Siljan Airpark**
1. Used and is using modern construction methods causing less disturbance to neighbouring ground.	1. Areas near runways have been deliberately left wild to provide habitats for local fauna and flora.
2. Airpark residents are planting many different flowers, trees and vegetables attracting wildlife and	2. Opening up previously forested areas has encouraged many more birds, especially cranes.

insects.	
3. Re-planting trees taken down during construction.	
4. Landscaping communal areas	

Table 30 Source: Discussion Groups April & June 2011

5.5 Local Business Discussion Groups Analysis

In both Biscarrosse and Siljansnäs two discussion groups of 4 + 4 local businesses took place

This section presents the data collected from questionnaires and semi-structured discussions (APPENDIX K). Results are presented in a variety of formats representing the most salient responses to the questions posed and summary of the raw quantitative data and qualitative views expressed. Open-ended discussion responses were grouped into categories with similar responses and then prioritised based upon frequency of mention.

5.5.1 This section presents the general data collected in the local businesses questionnaires.

5.5.2 The types of businesses which participated in discussion groups in Biscarrosse.

Biscarrosse

Type of Business	Years Trading
Garden Centre	30
Bijou Bed & Breakfast Hotel	2
Builders Merchant	20
Flying School	20+
Construction Company	1
Aero Club	30+
Building Engineers	20
Brasserie & Bar	5
Gardens Supply Company	10

Table 31 Source: Discussion Groups April & June 2011

Has the RA had any impact on your trade?

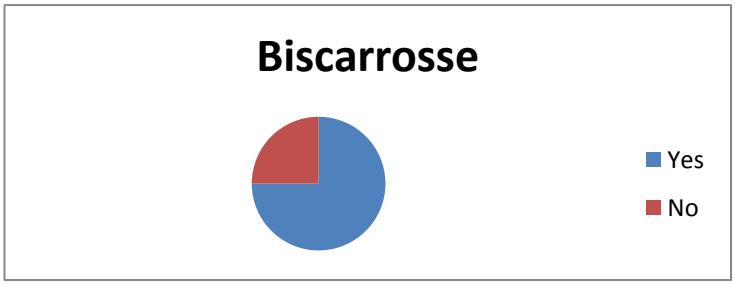


Figure 83 Source: Discussion Groups April & June 2011

5.5.3 The businesses which participated in discussion groups in Siljansnäs.

Siljansnäs

Type of Business	Years Trading
Café/Chocolate/Gift Shop	3
Flying Training	3
Supermarket	2.5
Crystal Lamp Manufacturer	10
Spa Hotel/Restaurant/Salon	5
Holiday Cottage Company	3
Electrical Installation Company and Retail Outlet	38
Hairdresser	21

Table 32 Source: Discussion Groups April & June 2011

Has the Airpark had any impact on your trade?

Figure 84 Source: Discussion Groups April & June 2011

5.5.4 Participants open-ended positive economic impact responses to having an Airpark in the local vicinity included:

Biscarrosse	**Siljansnäs**
Wider customer base	Brings new clients/customers
Promoted economic local	Provides opportunities for

development	employment
Raised local property prices	Residents spend money locally as not all have cars, only have or use of bicycles
More affluent people have come into the area	Increased tourism
Brings a better class of person into the area. Residents and residents' friends.	
Aided construction and related companies during recession	
Saved local activities	
Increased tourism	
Slight increase in longer term employment opportunities, usually manual/maintenance	

Table 33 Source: Discussion Groups April & June 2011

5.5.5 Participant's open-ended negative economic impact responses to having an Airpark in the local vicinity included:

Biscarrosse	**Response**	**Siljansnäs**	**Response**
No thought	1	Nothing negative	7
Nothing negative	7	Not the kind of product sold for a holiday home	1

Table 34 Source: Discussion Groups April & June 2011

5.5.6 Participants open-ended positive social impact responses to having an Airpark in the local vicinity included:

Biscarrosse	**Siljansnäs**
The young Airpark residents are easy going and easy to socialise with	Local residents are always welcome and are invited to Airpark open-days, Flying Circus and Museum events
Brings Biscarrosse into the 21st century	Some Airpark residents have volunteered their services for Siljansnäs Day July celebrations
Area benefits from international influences, culture and customs	Area benefits from international influences, culture and customs
Keeps Biscarrosse on the international map	Puts Siljansnäs on the international map
Belong to local Clubs and Associations	Attend local exhibitions, concerts etc

Table 35 Source: Discussion Groups April & June 2011

5.5.7 Participants open-ended negative social impact responses to having an Airpark in the local vicinity included:

Biscarrosse	**Siljansnäs**
Airpark second homeowners mean their children do not attend local school	Not really know anyone socially, only as clients/customers
Some permanent Airpark homeowners send their children to school out of area i.e. Boarding Schools	No-one lives there all the time
A “gated community” keeps themselves to themselves	Only here for a few days at a time

Table 36 Source: Discussion Groups April & June 2011

5.5.7 Participants open-ended positive environmental impact responses to having an Airpark in the local vicinity included:

Biscarrosse	Siljansnäs
Conservation of area surrounding Airpark properties	Non-Swedes are being taught how to recycle waste
Good examples of new eco-architecture	More people get to see the local natural beauty
Some properties are using environmentally friendly building materials	More people learn about natural areas through the Naturum Centre
Some properties are using environmentally friendly heating sources	No negative impact as just fly-in, stay a while then go again
Too small and too few hours are flown to create much or any environmental impact	

Table 37 Source: Discussion Groups April & June 2011

5.5.8 Participants open-ended negative environmental impact responses to having an Airpark in the local vicinity included:

Biscarrosse	Siljansnäs
	Low flying aircraft noise pollution
Increased aircraft emissions as more planes	Increased aircraft emissions
Not enough pine trees were retained	More residents means more pollution
Some properties have not replaced trees removed during construction	More waste produced for local recycling

Table 38 Source: Discussion Groups April & June 2011

5.5.9 Participant responses to perceived RA residents' integration into local community life included:

Participants' responses regarding Airpark integration into the local community

Biscarrosse	Siljansnäs
Must be permanent long term residents and not just second home owners to be accepted	Most keep themselves to themselves
Some residents have integrated into the local community	One of the Danish Airpark resident works for one month each year in the local hospital unpaid.
Some take an active interest in local politics	Airpark website publishes local community events
Some take an active part in local business development	Even though only here for a few days at a time some Airpark residents have got involved in local Clubs and Associations e.g. Sailing Club, Flying Club, Local History Society, Airpark Museum.
Some participate in local economic and social life e.g. Sailing Club, Flying Club, Folk Dancing Association, Folk Museum, Amateur Football Club, Chamber of Commerce	Everyone was welcome to use the cross country ski-tracks around the Airpark
Some do not want to be involved in any local community life	Everyone welcome to "Fly-ins",[70] Flying Circus events, Midd-sommer and Halloween parties and other events
Happy in their own gated world	
Airpark is member of APAB[71]	

Table 39 Source: Discussion Groups April & June 2011

5.6 INTERVIEW ANALYSIS

In this section the semi-structured interviews conducted will be analysed in three sub-sections: Biscarrosse, Siljansnäs (APPENDIX L) and RA Management (APPENDIX I).

[70] National and International Open days for visiting aircraft
[71] Association de la Protection de la Fauna et La Flore du Born

5.6.1 Biscarrosse: one-to-one interviews were held with Christian Mahaud[72] and Gautier Courribaut.[73] In the time allocated semi-structured questions regarding the economic, social and environmental impact of the RA upon Biscarrosse were discussed.

5.6.2 Economic Impact

5.6.2.1 Positive economic impact responses included:

Direct	Indirect	Aerodrome
Small benefit. Income benefit from property taxes were reduced as having to provide additional refuse collections; sewerage etc.	Local business benefitted from additional income. Greater benefit seen by local businesses during the winter out of the tourist season.	Extra aircraft movements help keep aerodrome operational.

Table 40 Source: Interview April 2011

5.6.2.2 Negative impacts for the local economy.

There were no identified negative impacts for the local economy.

5.6.3 Social Impact

5.6.3.1 Positive social impact responses included:

Local people were becoming more tolerant towards foreigners living amongst them not just as tourists
Some RA residents were active members of local Clubs and Association
Some RA residents were taking an active role in local politics

Table 41 Source: Interview April 2011

5.6.3.2 Negative social impact responses included:

The RA residents' interest in aircraft sets them apart from some local people
There is a "them and us" attitude from

[72] Directorate Générale des Services coordinates all the services of the Biscarrosse City Council, prepares and implements municipal decisions, develops and monitors budgets, procurement and records in connection with institutional partners.
[73] Director of the Department of Economic Affairs and Employment.

some of the local people towards RA residents

Table 42 Source: Interview April 2011

5.6.3.4 Had LVA households integrated into local community life?

Response: completely. RA residents were involved in local sports and politics, local societies, voluntary work, some children were attending local schools, a RA resident was proposing to organise events and festivals to keep Biscarrosse “alive” during the quiet non-tourist months.

5.6.3.5 Have RA residents been accepted into the local community?

Response: Not totally. RA had wanted special treatment, reduced property taxes and some exemptions.

5.6.4 Environmental Impact

5.6.4.1 Positive environmental impact responses included:

Noise Abatement Procedures in place and followed to avoid the town
RA only selling AVGAS and Unleaded fuels
Considerate flying to avoid houses not included in Noise Abatement area
No night flying, take-offs or landings
Landscaping plots and communal areas
Replacing trees removed during construction as per planning agreement
Replacing trees blown down in storms

Table 43 Source: Interview April 2011

5.6.4.2 Negative environmental impact responses: the only negative comment was that some RA residents have not replaced trees taken down during property construction or during storms.

5.6.4.3 Has LVA contributed in any way to local biodiversity?

RA pilots preserve a balance between flying, fishing, hunting etc. Seaplanes do not overfly fishing boats and fishermen
Landscape gardens and communal grounds

Property designs are varied, some using reclaimed materials, alternative sources of heating fuels, bio-gardens
Founding members of Le Association de la Protection de la Faune et de la Flore du Born (l'APAB) conservation association
Preserving and maintaining an undeveloped aerodrome perimeter area of 3,500,000 m2

Table 44 Source: Interview April 2011

5.7 Siljansnäs: one-to-one meetings were held with Per Skalk,[74] Olle Ryberg,[75] Lasse Nygard,[76] and Fredrik Lautmanns.[77] In the time allocated semi-structured questions regarding the economic, social and environmental impact of the RA upon Siljansnäs were discussed.

5.7.1 Economic Impact

5.7.1.1. Positive economic impact responses included:

RA instrumental in re-opening of local petrol station and garage
"Biggles Café" and EEA Aviation Museum, a Leksand LEADER Project, is estimating to bring 40-50,000 visitors p.a. to the area
Siljan Airpark Vintage Car week brings in approximately 50,000 visitors
Additional employment opportunities

Table 45 Source: Interview June 2011

5.7.1.2 Negative economic impact responses included:

RA property taxes and pension taxes are paid direct to national Government
State pensions have to be paid by Kommune to qualifying RA residents when they are in Siljansnäs

[74] Enterprise Development, Leksand Kommune
[75] Environmental Department, Leksand Kommune
[76] Dalarna LEADER representative and Chair of Leksand Parliament
[77] Bishop of Leksand

Table 46 Source: Interview June 2011

5.7.2 Social Impact

5.7.2.1 Positive social impact responses included:

School@work projects for local Dalarna schools
Puts Siljansnäs on the international map
More people see the beautiful Siljan country
Cuisine and culture introduced to rural Sweden
Local people becoming more tolerant of other cultures
RA representative attends Siljansnäs Sockenkontor monthly meeting
SA events are open to everyone
Training for young people

Table 47 Source: Interview June 2011

5.7.2.2. Negative social impact responses included:

RA residents are not here long enough to actively take part in local politics
Siljansnäs schools not benefitting from RA children
Would have like more RA properties

Table 48 Source: Interview June 2011

5.7.3 Environmental Impact

5.7.3.1 Positive environmental impact responses included:

Air traffic not really increased
Noise Abatement Procedures are being followed
Considerate flying, not overlying village properties not in Noise Abatement Zone
No real difference between an RA and any other industry e.g. farm, garage, timber mill
Recycling
Oil or fuel spillages resulting in land pollution are resolved by the RA and not the Kommune
Areas of RA left in natural state
Replanting trees removed during property construction
Landscaping plots with plants to encourage local insects
Jet fuel not sold
Property designs sympathetic to l rural Swedish traditional design

Table 49 Source: Interview June 2011

5.7.3.2 Negative environmental impact responses included:

Undeveloped plots unattractive
Refuse collections are costly as a second home development means amounts of rubbish not consistant

Table 50 Source: Interview June 2011

5.7.4 Has SA contributed in any way to local biodiversity?

Preserving and maintaining an undeveloped aerodrome perimeter, adjacent to the runways and other areas within the RA
Landscaping plots
Replanting trees
Replacing trees with new specieis, i.e. edible cherry
Landscaping and planting in communal areas

Table 51 Source: Interview June 2011

5.8 RA MANAGEMENT INTERVIEWS

5.8.1 Le Village Aeronautique des Lacs

Meetings were held with Jean-Luc Langeard[78] and Committee of Le Village Aeronautique des Lacs Residents Association

5.8.1.1. General Data

5.8.1.2 (a) Developer(s) of the RA: Jean-Francois Pascal, Carl Bonanza

5.8.1.2 (b) Infrastructure construction:

Local Company	Service Provided
SCREG Sud-Ouest Biscarrosse	Public Works
B& G Bois	Building construction

Table 52 Source: Interview April 2011

5.8.1.2 (c) Construction materials obtained locally: not known

5.8.2 Economic Impact

[78] President of Le Village Aeronautique des Lacs Residents Association

5.8.2.1 (a) **Providing Local Employment**

Permanent part-time	Part-time casual
Les Jardins d'Olivier: grounds maintenance	Sea/float plane flying instructor

Table 53 Source: Interview April 2011

5.8.2.1 (b) **Local Expenditure**

Aviation Fuel Sold

Company	Where Based	Supplied
TOTAL	National	AVGAS (100LL)

Table 54 Source: Interview April 2011

LVA Management Local Expenditure

Company	Where Based	Supplied
Les Jardins d'Olivier	Biscarrosse	grounds maintenance

Table 55 Source: Interview April 2011

5.8.3 Social Impact: responses included:

No greater social impact than any other small housing development.
Non-national LVA residents bring their culture, cuisine and customs to the RA and to the local area.
Provide aircraft for airfield open-days

Table 56 Source: Interview April 2011

5.8.4 Environmental Impact

5.8.4.1 (a) Positive environmental impact responses included:

Noise Abatement Procedures
Circuit Pattern;
Landscaping communal areas

Table 57 Source: Interview April 2011

5.8.4.1 (b) Negative environmental impact responses included: Only sells AVGAS 100LL. Does not sell MOGAS unleaded 91/98LL

5.8.5 Has LVA contributed in any way to local biodiversity?

Responses included: RA is member of APAB[79]

5.9 Siljan Airpark Management

One-to-one meetings were held with Carl Rönn[80] and Johan Hammarström.[81]

5.9.1 General Data

5.9.1.2 (a) Developer(s) of the RA: Carl Rönn, Aerodrama AB, SAPS[82]

5.9.1.2 (b) Infrastructure construction:

Local Company	Regional Company	National Company
El-tjänst AB (electrical installation) **Kerstis-Tommy** (Heavy Machinery) **GRÄVARN in Siljansnäs** AB (de-forestation and groundworks) **Leksand Kommune** (architectural services)	**PEAB** Dalarna: (sewerage and Asphalting)	**Swerock**: (ready-mixed concrete)

Table 58 Source: Interviews June 2011

5.9.1.2 (c) Construction materials obtained locally:

Siljansnäs Sågverksbolag AB (timber)
Nils Erik & Co (NECO) (Builders Merchant)
PEAB Apron Asphalting

Table 59 Source: Interviews June 2011

[79] Association de la Protection de la Faune et la Flore du Born
[80] SA Developer
[81] Chairman of Siljan Airpark Homeowner Association
[82] Siljan Airpark Homeowner Association

5.9.2 Economic Impact

5.9.2.1 (a) Local economic impact:

Providing Local Employment

full-time	Part-time casual
1 person: General maintenance/handyman	2 people: Internet Maintenance () Snow-clearance: Stuss Åkeri (Siljansnäs)

Table 60 Source: Interviews June 2011

5.9.2.1 (b)

Aviation Fuel Sold

Company	Where Based	Supplied
Hjelmco Oil	National	AVGAS (100LL)
Hjelmco Oil	National	Swedish Green Unleaded 91/98LL

Table 61 Source: Interview April 2011

5.9.2.1. (c)

SA Management Local Expenditure

Company	Where Based	Supplied
Tempo	Siljansnäs	Consumables
COOP	Leksand	Consumables
ICA	Leksand	Consumables
Hemköp	Leksand	Consumables
Wholesaler	Rättvik	General RA maintenance supplies and cleaning materials

Table 62 Source: Interview April 2011

5.9.2.2

SA Management National Expenditure

Aviation Fuels	Company
AVGAS (100LL) and "Swedish Green" Unleaded (91/96UL) :	Hielmco Oil

Table 63 Source: Interview June 2011

5.9.3 Social Impact

5.9.3.1 (a) Positive social impact responses included:

Everyone is welcome to attend SA events e.g. Midd-Sommar, Halloween, Siljansnasdagen, Kräftislördagen festival, Fly-Ins, Musuem events
School@Work project
Initiating different types of projects for local adolescents etc.
Non-national SA residents bring their culture, cuisine and customs to the RA and to the local area.
Brings younger people into the area
Brings people to church services

Table 64 Source: Interview June 2011

5.9.3.1 (b) Negative social impact responses included: As second homers residents do not all have time to fully integrate into the local community.

5.9.4 Environmental Impact

5.9.4.1 Positive environmental impact responses included:

Solar lighting for taxiways
Introduced Noise Abatement
Introduced Circuit Patterns and Circuit Height (1000ft)
Controlled flying around Lake Siljan annual August fortnight Fly-In
Provide “Swedish Green” unleaded 91/98LL fuel

Table 65 Source: Interview June 2011

5.9.5 Has SA contributed in any way to local biodiversity?

Response: To some great extent but is commencing landscaping communal areas with additional tree, shrub and flower planting; leaving sections of the Airpark “natural”.

CHAPTER 6

DISCUSSION OF THE FINDINGS

This chapter discusses how RA's fit into SD and particularly RSD in the light of the findings of the research. The discussion is in two parts the first section briefly compares results with the objectives and anticipated RA impacts identified in the literature review.

The second section discusses RA case study evidence found from questionnaires, discussion groups, interviews and secondary data, divided three sub-sections to: (1) assess the extent that the objectives of this research have been met; (2) expand and describe some of the RAs' general characteristics and (3) the local economic, social and environmental impacts found.

6.1 Comparing results with the objectives and anticipated RA impacts identified in the literature review

The research objectives were to; (1) clarify the essential characteristics of RAs in rural Europe and the main features of their development; (2) establish and consider some of the RAs' significant economic, social and environmental impact upon their locality and to explore those who benefit and those who are disadvantaged; and (3) set and evaluate European RAs development in the context of SRD.

As previously stated (3.1 above) literature, academic or otherwise, on this topic was extremely limited even though the EC, and some Member States, have been aware of RA's possible economic and social benefits for SRD for some time (EC, 2007a:27; Swedish Research Council, 2007).

The anticipated RA impacts that might be found were not dissimilar to those identified in the literature review of comparable alternative residential models and tourist related developments.[83] These identified that the main economic impacts were felt more during the construction stages and initial furbishing, but there were long-term employment prospects for local residents and benefit for local retail outlets.

[83] e.g. Hafan Pwllheli Marina Economic Impact Evaluation Report (2005); Economic Impact Assessment of King's Lynn Marina (2007) & The Local Economic Impact of Centre Parcs Holiday Villages Report (2005)

6.2 RA Case Study Evidence

6.2.1 Whilst the Four Capitals Approach to SD "Channels of Impact"[84] is currently in vogue, this research considered some of an RA's economic, social and environmental impacts likely to convey SRD effects in its local area. In addition the researcher wanted to ascertain if RAs' economic, social and addressed environmental impacts[85] assist in tackling issues associated with rural decline. RA findings were combined to draw broad conclusions on their possible impacts but direct comparisons were made between LVA and SA second homeowners.

6.2.1.1 The first research objective, clarifying essential characteristics and development of rural European RAs, was met after much painstaking and extensive investigation, highlighting there is no "one-click" easy access to data on the European RA phenomenon and a lack of adequate European GA statistical information (EC, 2007b). Any consideration of RAs' is currently hampered by lack of data, and assessments relating to RSD.

6.2.1.2 The second objective, investigating some significant economic, social and environmental RA impacts and those who were advantaged and/or disadvantaged was somewhat met, though not to such a great extent as the first. This was due to researcher financial and time constraints and lack of available secondary data. There is currently no comprehensive system for collecting and collating local data in Swedish parishes and Kommunes (Skalk & Wikström, 2011). Some data was freely available while other data required commissioning.[86] In France data was a little more accessible. The majority of Swedish people speak excellent English, unlike in France and the researcher's lack of fluency in French somewhat hindered data collection. This could have made assessing RAs in terms of SRD problematic, but interpreters were used.

6.2.1.3 The third objective, setting and evaluating rural European RAs development in the context of SRD, resulted in the conclusion and recommendations in Chapter 7 below, and in a comprehensive, though brief, listing and description of European RAs operational, in planning or abandoned in Chapter 2.

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[84] i.e. manufactured capital (infrastructure), natural capital (natural resources), human capital (health, well-being and productive potential of individuals) and social capital (human well-being on a societal level)
[85] e.g. landscaping to off-set carbon footprint
[86] Statistics Sweden (SCB)

6.3 Case Study RAs General Characteristics and Variations

Both RAs were developed on former land used for forestry and used established GA facilities, established further aviation and RA recreational facilities. LVA installed airfield fuel supplies and plans recreational facilities.[87] SA constructed an additional asphalt runway, sauna and visiting pilot accommodation and plans extra recreational facilities.[88]

Types of RA aircraft were across the GA spectrum with some RA households having more than one aircraft. However, more aircraft were owned by SA than LVA respondent residents with similar hours flown around the RAs and neither RA stipulates residents must own an aircraft or have a minimum number of hours as Pilot-in-Command Delahaye, 2011b).

Property styles range from self-designed/self-built, architect designed/self-built or company built to top of the range kits delivered on low-loaders and company erected on site. At SA all homes bar 1 are second homes while constructed LVA homes are mainly permanent residencies. However, second homeowners spend similar time at their respective RA and for similar periods.

RA respondent families covered a wide age range, 1 hour to 85 years, with a mean of forty-three years. Many of the undeveloped plots have been purchased for retirement when owners will have more time to enjoy their aviation hobby. However, there were a similar number of respondent families of 36-65 years with a greater number between 51-65 years at LVA. Nationals dominate at LVA, while SA is more international bringing wider cultural influences.

6.4 Establishing and considering some RA significant economic, social and environmental impacts

6.4.1 RA Economic Impact

Details of technical RA specifications in terms of aircraft type, landuse, housing construction, type of residency and demographic profiles will all have impacts on the extent to which RAs are sustainable, or otherwise.

RA residents are generally middle-class with professional careers, self-employed or retirees. RAs young retirees, or those from the baby-boomer generation, have

[87] Boules pitch and Clubhouse
[88] Swimming pool, children's play area, Boules pitch and tennis court.

usually earned more during their working years than in proceeding generations and accumulated substantial savings to provide for and enjoy their retirement. RA older in-migrating retirees, whilst not addressing rural ageing, do have positive economic impacts stimulating growth in health services; finance;[89] hospitality; [90] retail[91] and tourism etc." (Skelley, 2004:212-223). How RAs can fit into ideas of mixed rural communities in terms of class, income and affordable housing requires future consideration.

More RA properties were constructed by local companies and tradesmen at SA compared to LVA, where the majority used regional companies, but local companies for landscaping. RA self-builders also used local and some regional tradesmen for various parts of their building project. A considerable amount of local and nationally sourced building and landscaping materials were sourced at both local and regional levels rather than nationally. This has provided a boost to local construction industries.

In both RAs main day to day and major item expenditures was made locally, with some more specialised items were purchased regionally. Total household local expenditure, excluding daily food supplies, were surprisingly similar when comparing respondent second homeowners. However, considerably more was spent by LVA residents in local bars and restaurants. This was not unexpected as Swedish culture leans towards home-entertaining than for eating-out, which is reserved for special occasions.

SA respondents spent more on small household goods, hairdressing & beauty, medical & dentistry, car serving & repairs, clothes and leisure equipment when compared to either LVA second homers. Many of the local Biscarrosse shops are more expensive and have less selection than those slightly further afield.[92]

Some LVA respondents work locally in Biscarrosse or self-employed from home. Some SA respondents work locally, when in residence, in either Siljansnäs (the majority at the Aeroclub) or Leksand (a Danish Airpark resident works full-time 1 month per annum). At both RAs some manual and technical employment opportunities have been created, though none on a full-time permanent basis.

[89] banks, insurance, stocks, financial planners, and accountants
[90] restaurants, bars, accommodation, entertainment
[91] durables & non-durables
[92] Biganos, Arcachon, Bordeaux etc.

Biscarrosse administration felt direct and indirect tax effects e.g. IRPP[93] and TVA[94] brought small local community benefits. However, RA property taxes i.e. TVA and TF[95] give annual benefits which not have been available if the land had been retained as forestry and scrubland. In Sweden property taxes and pension taxes are paid to national Government and then re-distributed to local Kommune's. Leksand Kommune is responsible for paying state pensions to qualifying RA residents when they are at SA even if they have not received monies from national Government. However, RA property tax revenue, collected locally, can be spent on improving and providing local services and utilities e.g. road surfacing and home deliveries. Siljansnäs has no medical facilities. There had been a nurse running a small practice next to the supermarket, but when she left in 2005, the supermarket lost approximately 10k SK per annum. The new owners open long hours and have received Leksand Kommune funding to carry out home deliveries (Nygard, 2011).

RA residents, whether permanent or second homers have helped revitalise their local areas by stimulating new or re-opening, local ventures e.g. petrol station in Siljansnäs and supermarket home delivery service; and the sea-plane flying school in Biscarrosse.

Overall the RA was generating economic benefit for Biscarrosse and Siljansnäs even if only providing a small amount of additional direct and indirect revenues and municipal income. RAs did generate additional local income, and tourism, from visiting aviators and SA's "Biggles Café" and Museum, open July 2011, attracted 700 visitors on Kräftstjärtsväng Saturday (Lind, 2001).

6.4.2 RA Social Impact

Aviation is an efficient means of transport across geographical barriers and where no alternative means of transport exist and offering freedom to travel and facilitates the exchange of cultural and educational experiences. Many European rural communities would be even more isolated without access to some sort of air services and in emergencies. In the UK, the Cornish raised monies for an air ambulance to address areas of rural isolation as lacking the facilities of a RA.

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[93] Impôt sur le Revenu des Personnes Physiques: self-declaratory income tax system, employers are not responsible for deducting income tax at source.

[94] Taxe sur la Valeur Ajoutée: French VAT applicable to goods and services with lower rates applicable to certain areas such as take-away food; is imposed on new builds or if property is sold for the first time within 5 years of completion

[95] Taxe Foncière: a land tax payable by both the owners and the occupiers of property

The social impacts, resulting from the RA development, are however, similar to those of any "top-end" residential development which brings people together. What is socially dissimilar is the RA residents' mutual interest in GA.

Respondents' regular use of local libraries was similar even though SA respondents' local library was in Leksand, approximately 14kms away. One SA household was married at Siljansnäs church as being mid-way for both attending families, but regular attendance was not dissimilar to national norms (Lautmanns, 2011) or at LVA.

It was generally felt in both communities that anyone new is treated as an "outsider". In Siljansnäs "…as RA residents are second home owners they were no different than any other seasonal visitors even though they were regular visitors." Though SA did help promote local understanding of other countries cultures (Siljansnäs is known throughout Sweden as being one of its most traditional regions) and make the area more known internationally, it also "…provided a source for local gossips and complainers". Socially many SA residents did not have the time to get involved in many local Clubs and Associations but did socialise with local people who have similar interests.[96] SA did extend open invitations to all its events[97] and cross-country ski-track circuit created around Airpark perimeter.

In Biscarrosse non-RA respondents thought that whilst RA residents had a common interest, LVA was not really any different from any other up-market residential development, though it was prestigious for the area. They felt there been not been total integration as their interest in aircraft set them apart and they lived in an "enclosed" community, making them appear more aloof. Not having Airpark Open-days, as put by one RA respondent, "…not wanting to be like fish in a bowl or animals in a zoo" has the effect of setting the RA apart. Many residents are however happy to bring their aircraft to the Aerodrome's public open-days. Local bus services and street lighting have been extended to the Airpark and Biscarrosse-Parentis Aerodrome.

[96] aviation, sailing, music, local history, ski-ing etc.
[97] "Fly-ins", Flying Circus, Midd-sommer and Halloween

6.4.3 RA Environmental Impact

The GA main environmental impacts are aircraft emissions[98] and noise. Aircraft emissions and aviation noise pollution are taken seriously in Europe (2009/29/EC). The EU is responsible for about 13% of global emissions (Worldbank.org, 2011). More than 50% of European land is used for agricultural and forestry production and directly impacts on GHGs (GHG-Europe, 2010) producing 48% European emissions (EC, 2009). However, General and Business aviation together contribute less than 2 per cent of civil aviation emissions with GA producing 0.016% of all GHG global emissions (Stern, 2006:175) and GA ozone production reduces global warming caused by its own emissions.[99] SA sells both AGVAS (100LL) and "Swedish Green" unleaded 91/98LL fuels,[100] but this is not suitable for all aircraft engines[101] and LVA sells AVGAS. All GA fuels are subject to taxation (2003/96/EC) and European Environmental Pollution Policy requires RA's, or RA residents, to reinstate land for any oil or fuel spillages causing soil pollution (2004/35/EC).

6.4.3.1 Aviation fuel and oil combustion does produce small amounts of sulphur and soot. However, sulphur reflects solar radiation back into space and soot traps outgoing infra-red radiation and not all sectors of GA contribute to GHG impact to the same extent. Gliders use atmospheric energy causing no emissions and launching, by winch or motorised aircraft, produce minimal emissions. Ballooning only causes minimal emissions when using the burner to gain height. At SA gliding activities are enjoyed by many residents. In Sweden many GA pilots have initially learnt on gliders. RA Management Airpark aviation air pollution avoidance includes measures to minimise air pollution by selling AVGAS or Unleaded fuels, not JET A1 aviation fuel.

6.4.3.2 How people perceive aircraft noise is dependent on its intensity, frequency, characteristics and length of time that they are exposed to it (DESA/DSD/2001/9:9) (Table 66).

EXAMPLES OF NOISE LOUDNESS

[98] Carbon dioxide and other greenhouse gas (GHG's) emissions cause changes in air quality and soil pollution.
[99] Ozone destroys atmospheric methane (CH4) which is a powerful greenhouse gas with an atmospheric lifetime of 14 years.
[100] Hjelco Oil is a Swedish company known for leading world research, production and distribution of unleaded and low toxic AVGAS Aviation Fuels. Sweden has had unleaded aviation fuel for more than 27 years.
[101] Unleaded fuel is certified for use in Rotax engines it is not, as yet, certified by other major aviation engine manufacturers e.g. Lycoming, Continental etc.

Noise	Db(A)
normal conversation	50-60
loud radio	65-75
busy street	78-85
heavy lorry about 7 metres away	95-100
Pigs in a sty at feeding time	110
chain saw	115-120
jet aircraft taking off 25 metres away	140
GA light aircraft taking off 25 metres away	6-10

Table 66 Source: Eurocontrol, 2011

European GA aircraft engines are already subject to noise certification standards (ICAO,1944,2006). [102] Both RAs follow the 'balanced approach' concept of aircraft noise management (ICAO, 2001:A33/7) i.e. noise abatement operational procedures[103] and operating restrictions [104] to avoid nuisance and disruption to local communities in their vicinity. SA introduced these where none had been previously in place. RA respondents' responses highlighted adherence to Noise Abatement Procedures and general consideration as not overflying local properties. None of the respondents used Jet A1 fuel and some aircraft had been fitted with noise reducing propellers and hush-kits. However, while reducing noise beyond ICAO standards with hush-kits or silencers these can reduce engine power and therefore aircraft performance (CAA, 2011) Many RA respondents are both RAs commented that roads, adjacent to their Airparks, produced more noise which fluctuated but was continuous.

In Siljansnäs locals had believed that there would be a considerable escalation in noise pollution due to envisaged increased number of take-offs and landings, many more than were being made by the Aeroclub and other airfield users. However, Leksand Kommune's Planning Department did not envisage this having looked at the average hours Swedish pilots generally fly per annum, evidenced by RA resident

[102] Convention on International Civil Aviation Annex 16: Environmental Protection, Volume I Aircraft Noise to the Convention on International Civil Aviation, Chaps 3 & 4) and ICAO Resolution A33/7 have been adopted by European Council Directives 80/51/EC and EC/2002/30.

[103] for take-offs, landings and local flying
[104] nil or emergency-only night landings

questionnaire respondents. Interestingly, Per Skalk (2011b)[105] thought that the number of properties, and therefore GA aircraft, could have been increased.

Non-RA residents generally felt there was not enough RA aviation pollution or emissions to be worried about and Noise Abatement Procedures were being followed. At LVA aviation activities were less noisy than local military aviation at Cazaux and CEL.[106] Many second homeowners stated flying to the RAs rather than driving produced less pollution as distance travelled was quicker and burnt less fuel, therefore less emissions.

6.4.3.3 Reducing RA Carbon Footprint measures included landscaping. Whether this was to off-set carbon footprint or for own respondents' pleasure was not generally identified. Some respondents stated they were not concerned with aviation carbon footprint as not producing enough not to be worried by it. Many did not complete this section, possibly indicating unwillingness to commit to paper, being unconcerned about carbon footprint.

At LVA while many of the properties had their own swimming pools some residents had made a positive decision not to construct one on environmental grounds but use the local municipal or gym pools. SA is proposing a communal RA pool, which may also be available to Aeroclub members (Hammarström, 2011).

6.4.4 RA contribution to local bio-diversity

RA contributions to local bio-diversity have been in landscaping communal Airpark areas and responsible flying to preserve the balance between hunting, fishing and flying; e.g. Sea-planes avoiding overflying fishermen and avoiding flocks of birds. However, the researcher thought that neither M. Mahaud nor M. Corribaut was fully aware as to the main reasons for pilots avoiding flocks of birds. Bird strikes can cause considerable damage to aircraft and accidents. At SA replacing birch trees with additional species e.g. cherry is encouraged.

Neither case study country, nor any other European country, requires economic and/or social impact assessments for a RA development. Additionally, Swedish

[105] Development Manager Leksand Kommune
[106] Centre d'Essais des Landes rocket testing facility.

planning and development legislation[107] does not require EIAs for proposed RA developments when "…there are less than 1000's of aircraft movements per annum"[108], therefore no documentation to view. French planning and development legislation[109] does require EIAs irrespective of the number of aircrafts movements. In respect of LVA, as not constructing its own runways, the combined Aerodrome users movements were envisaged to be in the region of 3,000 per annum therefore allowing LVA's development was not of major environmental impact concern (Mahaud, 2011). Planning consent required trees removed during construction should be replaced where possible.

6.5 There are a growing number of non-Swedish Europeans who live all or parts of the year in Swedish rural areas and RAs there are seen as one of the emerging development opportunities (Swedish Research Council, 2006b). The increasing number of planning applications throughout Europe would point to a widening appreciation of such opportunities. This research did not identify any section of the local population who was, or might have been, disadvantaged by a RA development in their vicinity. Even though this research received publicity in some local press (APPENDIX N) and Internet on-line forums, no-one approached the researcher to express disadvantages. However, while the main group which was advantaged was obviously the RA residents themselves, as being able to enjoy living amongst others with a similar interest, many other groups, individuals and neighbouring communities were advantaged to varying degrees during construction and operational phases of the RAs as evidenced by the data collected.

[107] Planning and Building Act; Environmental Protection Act; Environmental Code; Heritage Conservation Act and Roads Act.
[108] Christian Mahaud,Directorate Générale des Services coordinates, Biscarrosse
[109] Le Code de l'Urbanisme and Le Code de la Construction et de l'Habitation

CHAPTER 7

CONCLUSIONS AND RECOMMENDATIONS

European interest in RAs is growing, evident by the small but increasing number of European RA development applications. This research explored some of the likely positive and negative impacts of the RA phenomena in rural Europe. Whilst it is acknowledged that the author has a personal interest in GA, the conclusions of this research are the product of the data collected. However, it is hoped that this research may be instrumental in adding to people's knowledge and understanding of the European RA phenomenon and their links to RD and SRD.

The SRD debate is often seen as a conflict between economic activity and the environment and it appears to the author that European rural areas have increasingly become seen as "nature reserves by policy makers, resulting in SRD being preoccupied with environmental management and protection of natural resources. However, SD is about human behaviour, not only from ecological and environmental perspectives but also social and economic ones. It is about people's behaviour towards each other and their surrounding environment, involving long-term responsibility for society and the earth's resources which necessitates balancing economic, social and environmental interests and concerns. SD"s…meeting the needs of the present without compromising the ability of future generations to meet [theirs]" (UN, 1987c) is extended to "rural" by the actions and initiatives taken to improve standards of living in non-Urban neighbourhoods, the countryside and remote villages. The complementary relationship between SRD priorities mean that trade-offs can be made, e.g. emission trading schemes (2003/87/EC), therefore not restricting personal freedoms which may be contrary to social development. RA's can provide a "green lung" allowing insects and birds to thrive as being large open mainly grass spaces with landscaped properties. They are not subject to intensive farming or organophosphates and pesticides.

Rural areas must also be places of business, commerce and living in order to have sustainable communities. Economic activity and the environment affect quality of life and the changing role of agriculture, though still shaping the European rural landscape and remaining a crucial component of rural economies, is part of the wider structure of SRD which encompasses focusing on strategic investments. Economic investment and environmental protection, or improvement, can work together to enable the expansion of entrepreneurial activities for the benefit of rural

communities. RAs can play a small but important role for SRD, in certain circumstances, if they become destinations for national in-migration and international immigration and helping to alleviate some of the problems many European rural areas face, even if only to a minor extent. This research found positive economic, social and even some environmental RA impacts have assisted local community sustainability and SRD. RAs can help slow rural out-migration, ageing, lack of infrastructure and difficulties in public service provision by improving the local economy, skill-base and, directly and indirectly, rural transport.

Living sustainably should not preclude the enjoyment of GA activities. Aircraft ownership can reduce the obstacle of distance and break down spatial barriers and therefore could play an important role in certain rural locations. Coupled with the fact that small GA aircraft can be unattractive to civil airport managers, RAs providing accommodation, runways and life-style, make rural European areas more likely to be migration and immigration destinations for aircraft owners and enthusiasts. GA aircraft do not carry fare-paying passengers; are more sensitive to wake vortices created by larger aircraft, therefore taking up scarce capacity time; may require special infrastructure e.g. dedicated terminals or aprons financed by the airport, and pilots and their families require additional forms of transport to get to end destinations. GA will never be for mass transportation, but can be important in rural transportation and importantly for providing emergency and fire safety contingency plans. RAs can be used for:

- refuelling fire fighting helicopters;
- providing firebreaks in forested rural areas;
- medical helicopters in disaster scenarios;
- pilots unable to land at civil airports, or running low on fuel;

Fire fighting and firebreak functions may, in the future, become vital if Europe continues to suffer from increasing hot dry summers as a result of global warming.

Environmentally there is on-going aviation research into the use of other energy sources to power light aircraft, e.g. electricity, solar etc. as well as aviation fuels (APPENDIX O). New fuels and engines will improve ecology and new avionics will improve safety and efficiency. Many RA residents already use unleaded aviation fuel and see this as local acceptance, or tolerance, of RAs and of recreational GA generally.

The research undertaken has highlighted some other positive RA impacts in relation to notions of SRD which may assist in redressing a range of the issues associated with rural decline. These included:

1. Reversing social exclusion by promoting access to communication and information services, education and training skills,

2. Encouraging integration to expand cultural horizons;

3. Bringing land into use and stewardship where it has been abandoned or allowing diversification of poor or unprofitable agricultural land;

4. Halting the closure of existing GA airfields therefore saving grassland fauna and flora habitats;

5. Tackling pollution by reducing on-the-ground vehicle GHG emissions;

6. Developing related tourist activities in rural areas to expand economies and local infrastructure.

In conclusion, in many European rural areas RAs reconcile SRD objectives which at first appear contradictory and competitive, as generally providing positive economic and social impacts like other alternative residential developments. They enable people to reconcile their work and private life, and enjoy a standard of living and recreation not totally at the environment's expense if environmental damage is avoided, off-set or as minimal as possible. Without GA, for some people many rural areas would be less attractive places to live in, work or visit; possibly curbing the economic and social growth of those areas. RAs can be part of well-functioning local civil societies with the potential to deliver positive social and economic impacts to their neighbouring villages and towns. This would result in all-year-round quality of life, not just during the summer and tourist season. Even where the RA is a second home development residents' visit all year round and together with Airpark entrepreneurship enhanced local businesses, services, education and tourism, fundamental factors in SRD.

The relationships between socio-economic and environmental impacts are very close. Though socio-economic impacts are often more complex and time consuming

to measure, it is important to consider the positive and negative effects on the social and economic welfare of the community as well as the changes in the local areas physical environment that might result from a RA development. Solely considering the environmental impacts, as is currently done, potentially completely influences both public and local government agencies perceptions on whether to allow such projects to proceed, possibly to the detriment of community social and economic sustainability and SRD. In the author's opinion RAs might well be able to make positive contributions to the development of SRD, in certain areas, and the socio-economic benefits they bring might off-set immediate environmental costs, particularly if they developed in eco-friendly ways

RECOMMENDATIONS

The author feels that with regard to SRD and European RA development applications, there is perhaps an over preoccupation with environmental protection at the expense of social and economic sustainability. Many local and national planning departments appear to be slow in considering RA's possible economic and social benefits for SD. Environmental and social impact assessments should be integrated into RA development applications instead of focusing on only one of the three pillars of sustainability i.e. environmental impact. By doing this, opportunities for SRD may then not be missed. Proposed changes to UK Government Planning Policies could make the realisation of a UK RA possible to assist in local SRD.

Further in depth research is needed into the precise nature of such trade-offs and into when and where RAs could be seen as genuinely positive for SRD.

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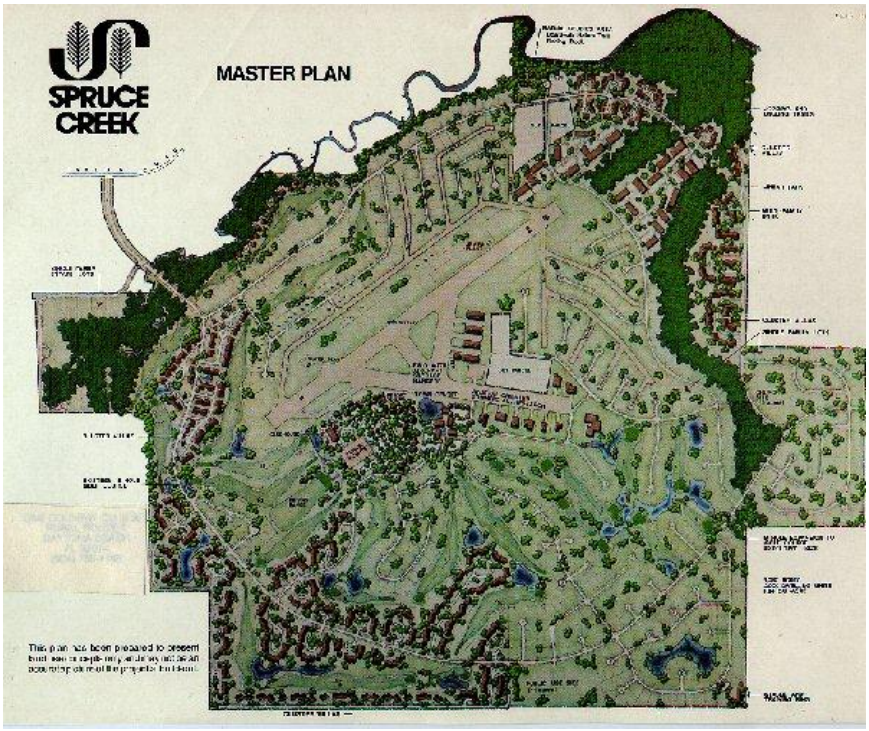
APPENDIX A

OTHER WORLD RESIDENTIAL AIRPARK (RA) DEVELOPMENTS

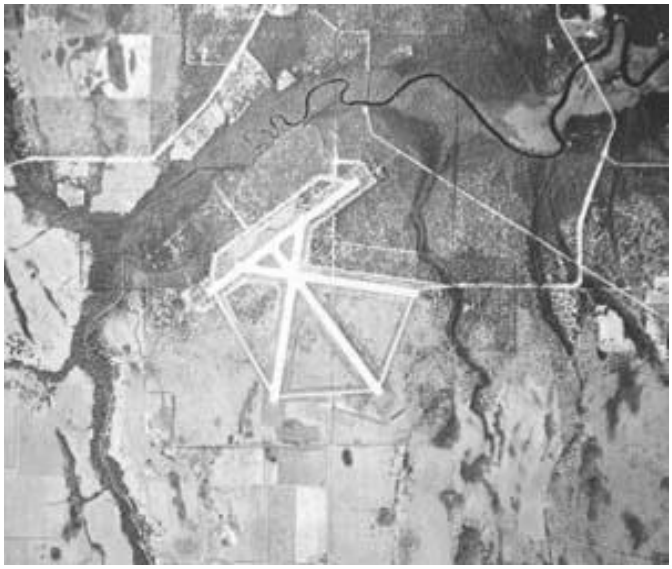
Spruce Creek Fly-in Community was not developed until 1970. After World War II, McKinley Conway flew a Cessna 150 for business travel in America. Whilst he found this was easy to get from place to place his mobility on the ground was restricted as having to wait for cars to take him to his appointments. He saw a world where he could taxi his aircraft to the door of companies and opportunities for converting disused surplus World War II airfields into fly-in office and industrial parks. He offered his services, as a consultant to airfield owners, predominantly local authorities. However, at Samsula airfield near Daytona Beach in Florida, he also saw the potential for developing a residential and recreational fly-in community. During the 1960's fences and other obstructions had been erected to discourage local residents from using the now disused airfield for Hot Rodding, Drag Racing, camping, for courting couples and even fishing.

When the Florida State department chose an alternative site for their new University, the local administration, who liked Conway's proposals for this exciting new type of community, offered to sell the land to Conway. Conway was not a property developer but knew this was not an opportunity to be missed. Not having the funds he formed a consortium, Fly-In Concept Inc., comprising aircraft owners and experienced pilots, bringing together a wide range of skills from development and conservation to planning, finance, aviation and recreation, with himself as President, to purchase the land and use a developer to complete the project.

McKinley Conway accepting the Spruce Creek property from Daytona, Florida Mayor Richard Kane July, 1970 (Comway.com,1999a)



Spruce Creek Fly-In Community Sales Brochure 1972 (Conway.com, 1999b)



Spruce Creek Fly-In Community 1975 (fly-in.com, 2009)

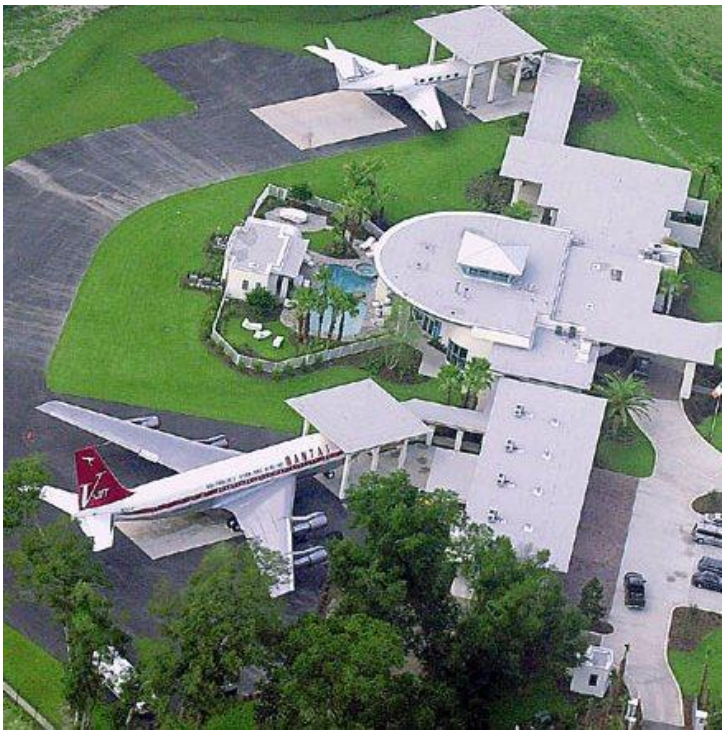
Demographic data in 2000 (City-Data.com, 2011) showed the Samsula-Spruce Creek community had an average age lower than Florida's. Florida is often considered as a USA retirement State. Many airline pilots live at Spruce Creek and commute by small single-engine/propeller aircraft to nearby commercial airports to carry out professional flying duties and some even have 2 planes or more. All types of GA aircraft are based there from small single-engine propeller planes jets. John

Trevolta used to live at Spruce Creek, before moving to Jumbolair and parked his Boeing 707, three Gulfstream jets and Lear jet outside his home. Properties, with taxiway access, can be bought or rented and varying in size, from 2 bedroom apartments to 6 bedroom mansions in 4 acres, and price from $1,400pm rental to +$5,000,000 to buy. Most homes have hangars and not all residents are pilots or they have pilots in their family as the Airpark is not restricted to aircraft owners.

Spruce Creek Fly-In Community (scopa.com, 2011)

Aviation facilities include a 4000' paved lighted runway and fourteen miles of paved taxiways. There are several aircraft repair facilities and two self-service fuel pumps selling 100LL (Avgas) and JetA, and tanker hanger delivery is also available. Property owners do not pay landing fees but pay an annual fee for Spruce Creek Property Owners Association (SCPOA) membership. SCPOA own, control and maintains the airport, paying for road, taxiway, runway and communal area maintenance and 24 hour security. Airpark facilities also include an eighteen-hole championship golf course, tennis, club swimming, canoeing, restaurants and common owned nature areas with wild deer, foxes, eagles, hawks, turtles and the occasional bobcat.

There are now more than 500 RA’s in the USA. One of the recent RA developments is Jumbolair near Ocala, Florida, with a 7,550' paved lit runway purported to be the world's largest private airstrip and home to John Travolta and his family and aircraft.



John Travolta's Jumbolair home (joe-ks.com, 2004)

Other Airparks developed in rural areas that can be found outside the USA and Europe and which have seen positive economic and social SRD effects that an Airpark can bring have can be found in:-

AUSTRALIA

Temora Airpark in rural New South Wales, developed in 1991, was an initiative of the Temora Shire County and combines residential and commercial plots and an aviation museum with access to a 2040m x 30m lit bitumen runway, open 24 hours, and is capable of taking aircraft up to the size of a Boeing 737. The Airpark was seen as an asset to stimulate Temora's economy and, with no landing fees, as an incentive to attracting businesses, families and tourists.

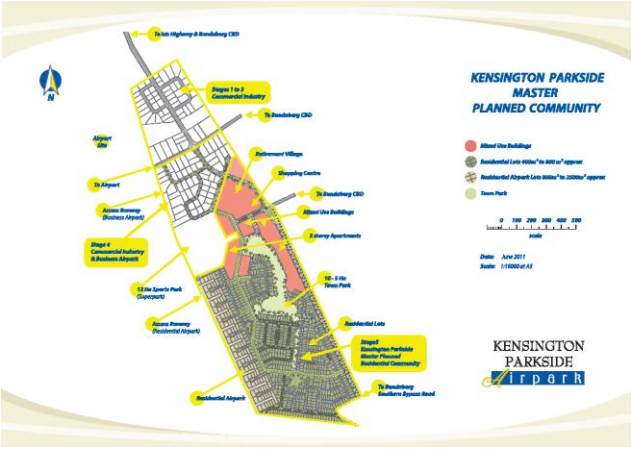
Temora Airpark Site Plan (airparktemora.com.au, 2011)

Other Australian Airparks include:

Whitsunday Aviation Village Estate (WAVE) (2008) is a gated community on 60 acres, located on Whitsunday Airport, in the Great Barrier Reef area. It comprises 57 residential plots and 30 leasehold commercial sites with access to a 1410m asphalt runway.

WAVE Airpark (whitsundayairport.com.au, 2011)

Kensington Parkside Airpark in Bundaberg, Queensland has 115 plots for aviators and non-aviators constructed for the top end of the property market. It is a project by the same developers as Spruce Creek Fly-in Community in the USA and situated 15 kms from the Coral Coast beaches and a short flight to the Great Barrier Reef, Lady Elliott, Lady Musgrave and Fraser Islands.



Kensington Parkside Airpark (kensingtonparkside.com.au, 2011)

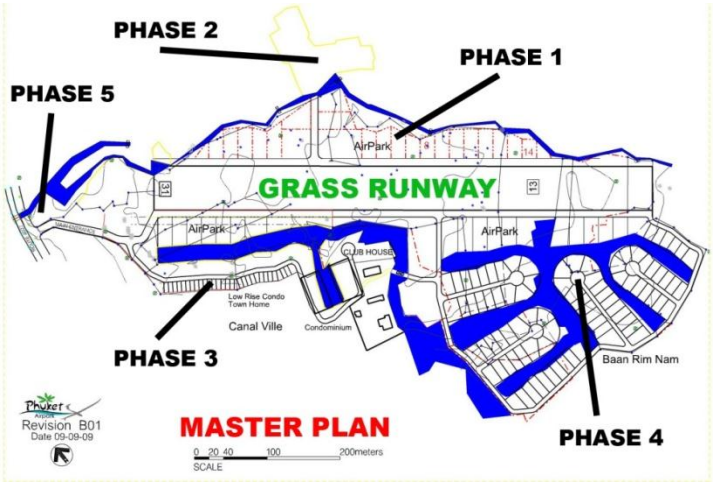
THAILAND

There are currently 4 RAs in Thailand. These are: - Phuket, Pattaya, Best Ocean and Lanna.

Phuket Airpark (2009) with an 800m grass runway started construction in 2008 in 50 acres of tropical vegetation with 86 plots ranging from large villas to apartments more suitable for temporary holiday accommodation.

Phuket Airpark (phuketairparkresidence.com, 2009a)

Homes can be designed in any style, providing that they are 10m back from the road and have a "Thai hat" roof, copying traditional Thai architecture. Aircraft can be hangered under properties or in the club hanger and can be leased to the Phuket Flying Club. Phuket Flying Club assists the Thailand Environmental Institute with ecological monitoring and Club members record environmental data which is entered into an environmental resource management data base. Airpark facilities also include a shopping village and restaurant.



Phuket Airpark (phuketairparkresidence.com, 2009b)

Best Ocean Airpark (2009) comprising 62 plots and 860m runway is located in southern Bangkok Airpark residents have membership of the 54 hole .golf course and Club House, a fully-equipped Sports Complex, hotel and aviators café.

Best Ocean Airpark (bestoceanairpark.com, 2009)

Pattaya Airpark (2008) in Banglamung started construction in 2004 and has planning for 37 villa plots and apartments, with access to a 560m x 20m tarmac runway. Facilities include a flying school, restaurant Sport Club and Spa, Air Museum, Pilot Shop and Aircraft Maintenance Services.

Lanna Airpark (2009) is located near Chiang Mai in Northern Thailand comprises 20 houses and some smaller bungalow units with access to an asphalt 720m x 18m runway. Other facilities also include a clubhouse and additional hangers for 4 aircraft. Air traffic control is provided by Chiang Mai international airport.

House at Lanna Airpark (thai-airpark.com, 2010)

THE PHILIPPINES

Woodland Airpark, located near Magalang at the foot of Mt. Arayat, is constructed on 8.5 hectare with overnight accommodation available on site in addition to the residential properties. The Airpark has a 650m grass runway, 3 large hangers accommodating over 25 aircraft, an aviation maintenance facility, café and swimming pool overlooking the airfield.

Woodland Airpark (Teodoro, 2010

MALAYSIA

Bernam River Airpark (2009) is located in Mukim Hulu Selangor adjacent to the Perak state border, comprising 5 residential plots on 221 acres and is the first private airpark in Malaysia. It was built to provide much needed infrastructure for GA operations due to increases in air traffic at Subang Airport and the imminent closure of the Sungei Besi Air Base. Airpark facilities include the 750m tarmac runway which is planned to be extended to 1800m, a hangar complex with office facilities, clubhouse with pool, satellite TV and internet facilities, and communal swimming and Barbeque area.

Bernam River Airpark (bernamriver.com, 2010

SOUTH AFRICA

Eagles Creek Aviation Estate is a combined residential and commercial airpark and hangar facility currently being developed in rural Gauteng midway between Pretoria and Johannesburg. On this 70 hectare site there are 199 residential plots planned together with commercial hangers, pilot training and upgrading of the existing runway by 2012.

St Francis Field Airpark situated in the rural St Francis Bay area is an Airpark development 52 residential plots and hangers constructed in 2002. Surrounded by 160 Ha of communal land the Airpark includes 54 Ha of Nature Reserve, a 1200m grass runway and restaurant. Plans to pave the runway with concrete were turned down as unwelcome by some home owners. They felt it would lead to more commercialism, more planes and jets will be enticed to land here and there will be an increase in noise pollution and maintenance tariffs. Due to concerns about noise pollution only gyrocopters and microlights owned by residents can land there. However, others believed a tarred runway would be an advantage as adding value

to the Airpark and St Francis as owners of planes living in Mmupalanga or Gauteng would want to buy property as they could get down to the coast more often …"just fly down for a long weekend" (sfchronicle, 2011).

St Francis Field Airpark (avcom.co.za, 2010)

Wolvedans Airpark near Hartenbos, on the Garden Route, covers an area of 180 hectares with 100 plots developed around the Runway, Hangars, Clubhouse and Control Tower. Plots adjacent to the runway will have hangers. Other plots will be able to able to purchase or lease a Hangar in the area next to the Club House and Control Tower.

Wolvedans Airpark (airpark.co.za, no date)

The 1.1 km. x 18m tarred runway will be capable of accommodating smaller executive jets as well as single and twin propeller aircraft and has runway lights to enable after dark landings. Two thirds of the site will remain undeveloped as communal property and for local fauna and flora.

Wolvedans Airpark Site Plan (airpark.co.za, nodate)

Tedderfield Air Park was constructed in 2007 as a development of weekend cottages with adjoining hangars adjacent to the 1km long tarmac runway and 1,000m emergency grass runway. It is situated in Eikenhof Initially built and designed by people whose hobby is flying the Residents Committee decided to give another input by allowing one flying school to operate from their airfield.

AFRICA

Orly Airpark is situated on the Athi plains at Kajaido in Kenya, on 235 acres in an area called by the Masai “Olooloitikosh”, shortened to “Orly.” Opened in 2009 it comprised 15 hangars and 7 houses, with permission for a total 50 hangars and residential plots. Founded in 1999, by members of the Aero Club of East Africa and Kenya School of Flying, each member was entitled to a hangar and residential plot within the Airpark (Trempenau, 2011). The Airpark is also used by the Kenya Flying School for pilot training reducing training fees by approximately 16% when compared to commercial airports and airstrips run by the Kenya Airports Authority, therefore extending the possibility of learning to fly to more Kenyans.

Orly Airpark Club House
(denacrain.com, 2009)

Orly Airpark
(174.37.190.187,2011)

Orly Airpark (Georg, 2008)

These are just a few of the many RAs that have been and are being developed worldwide.

APPENDIX B

IAOPA Statistical Report World Assembly, June 2010

IAOPA Statistical Report
World Assembly, June 2010

IAOPA Association	Source/ Year	Members	Licensed Civil Pilots	Licensed Instrument Pilots	Active G.A. Aircraft	Micro / Ultralight Aircraft	Very Light / Light Sport Aircraft	Airports/ Landing Facilities	G.A. Hours Flown	G.A. Total Accidents	G.A. Fatal Accidents	% G.A. Aircraft with transponders
AOPA - Australia	2009	3,165	27,570		11,150	2,955		2,000	1,900,000	45	8	79%
AOPA - Austria	2009	260	9,501		1,095	107	200	51	105,000	46	8	80%
AOPA - Belgium	2001	211	5,342	817	2,066			59				
AOPA-Belize	2009	30	72	11	59	6	1	34		20	4	85%
AOPA - Botswana	2009	180	400	90	225	7	5	132	5,500	2	0	99%
AOPA - Brazil	2009	200	63,980	47,132	11,678	2,780	984	3,630	171,214	38	9	96%
AOPA - Bulgaria	2009	36	150	110	100	40	50	12	100	2	0	70%
AOPA - Canada	2009	17,780	62,542	16,162	26,436	5,102	1,082	5,726	570,000	194	15	95%
AOPA - Chile	2007	193	10,727	1,412	1191	625	2	332	250,000	3	0	66%
AOPA - China	2009	1,102	16,000	1,500	900			134	200	0	0	90%
AAG - Colombia	2007	50	14,820	10,000	2,500	40	270	580	1,200,000	26	5	100%
AOPA - Cyprus	2009	75	190	130	25	30	15	2	800	5	2	100%
AOPA - Czech Republic	1999	20	1,895	645	706			81		5	3	
AOPA - Denmark	2009	194	6,214	1,678	1,138	582		81	65,969	44	1	90%
AOPA - Finland	1996	57	4,389	1,014	467			16	75,100	12		
AOPA - France	2001	970	41,000	3,000	2,800			450	700,000	793	17	80%
AOPA - Germany	2009	4,121	81,346	1,719	19,394	6,000		500		237	29	99%
AOPA - Hellas (Greece)	2009	339	3,500	2,000	350	300	80	70	30,000	10	1	100%
AOPA - Hungary	1996	83	1,962	214	517			41	68,000			
AOPA - Iceland	1996	350	1,275	519	181			91	18,600	7	1	
AOPA - India	1999	68	3,482	3,424	581			400				
AOPA - Ireland	1996	275	2,100	932	313			34		8		
IAGA - Israel	2007	650	2,385	239	250	140		8	231,500	12	3	100%
AOPA - Italy	2009	690	18,000	4,500	500	18,000	0	294				100%
JAOPA - Jamaica	1997	39	352	229	48			15	22,000	2		
AOPA - Japan	2009	180	10,000		500							
AOPA - Kenya	2009	520	3,500	1,800	180	40	20	650	20,000	5	4	100%
AOPA - Korea	2009	53	7,000	6,000	227	350	50	7	40,000	4	0	100%
AOPA - Latvia	2003	17	237	164	30			11	2,136			14%
AOPA - Lebanon	2005	50	1,563	34				3				
AOPA - Luxembourg	2007	325	800	100	60	35	0	4	10,000	2	0	95%
AOPA - Malaysia	2007	200	5,000	4,500	350	15	0	179		5	1	100%
AOPA - Malta	2005	40			12			1		3	3	100%
AOPA - Monaco	2007	28	200	2	17	0	1	1		0	0	35%
AOPA - Netherlands	2005	1,600	12,000	5,400	1,182	315	81	60	120,000			
AOPA - New Zealand	1997	454	13,983	3,902	388			155	461,344	96	9	
AOPA - Norway	2005	158	1,449	100	388	180		86	100,000	29	4	90%
AOPA - Pakistan	2005	46	8,000	2,480	100	50		40	5,000	2	1	100%
AOPA - Philippines	2009	925	2,600	2,000	1,889		1,889	476		5	4	

APPENDIX B cont. IAOPA Statistical Report World Assembly, June 2010

IAOPA Association	Source/ Year	Members	Licensed Civil Pilots	Licensed Instrument Pilots	Active G.A. Aircraft	Micro / Ultralight Aircraft	Very Light / Light Sport Aircraft	Airports/ Landing Facilities	G.A. Hours Flown	G.A. Total Accidents	G.A. Fatal Accidents	% G.A. Aircraft with transponders
AOPA - Poland	2001	80	4,030	850	907			550	290,000	25	5	30%
AOPA - Portugal	1997	92			25			87				
AOPA - Slovenia	2005	18	829	261	220		150	17	3,500	15	2	100%
AOPA - South Africa	1999	349	9,280	4,782	4,124			282		177	63	
AOPA - Spain	2007	400	7,000	3,000	4,500	1,700	100	425	80,000	95	22	20%
AOPA - Sweden	2009	570	4,180	400	2,500	500	0	134	150,000	19	0	70%
AOPA - Switzerland	2009	2,299	12,510	2,900	3,700	0	50	78	350,000	10	11	95%
AOPA - Thailand	2001	300	4,063	1,916	104			32	--	6	6	100%
AOPA - Turkey	2009	100	4,000	300	100	100	50	45	35,000	3	1	100%
AOPA - United Kingdom	2009	4,248	45,600	20,200	10,000	4,500	3,243	237	1,100,000	248	18	50%
AOPA - United States	2009	414,224	594,175	324,495	228,663	3,738	6,811	19,729	28,020,000	1,474	272	85%
Total		458,414	1,117,891	483,063	344,836	48,237	15,134	38,062	36,200,963	3,734	532	Average= 83%

Notes:

Estimated data

Data not reported

Data is considered to be as of year-end of specified date

APPENDIX C DESIGN CHECKLIST

RESEARCH PURPOSE:

1. What is current knowledge?
2. Why is the project important?

SPECIFIC RESEARCH FOCUS AND RESEARCH DESIGN

1. Focus on individuals. groups, experiences, processes or content?
2. Who are the stakeholders

3. What type of design? i.e. Case study, ethnography, phenomenology, grounded theory, content analysis? A combination of the above? None of the above?

WHAT DATA IS NEEDED

1. Where to collect data?
2. How to gain access?
3. Time required
4. What resources are needed and what resources are available
5. Any existing constraints on data collection

HOW WILL DATA BE COLLECTED

1. How will the participants be sampled?
2. What role will I take?
3. Participant anonymity and confidentiality
4. Procedures to follow, what order to follow

CONDUCTING THE ANALYSIS

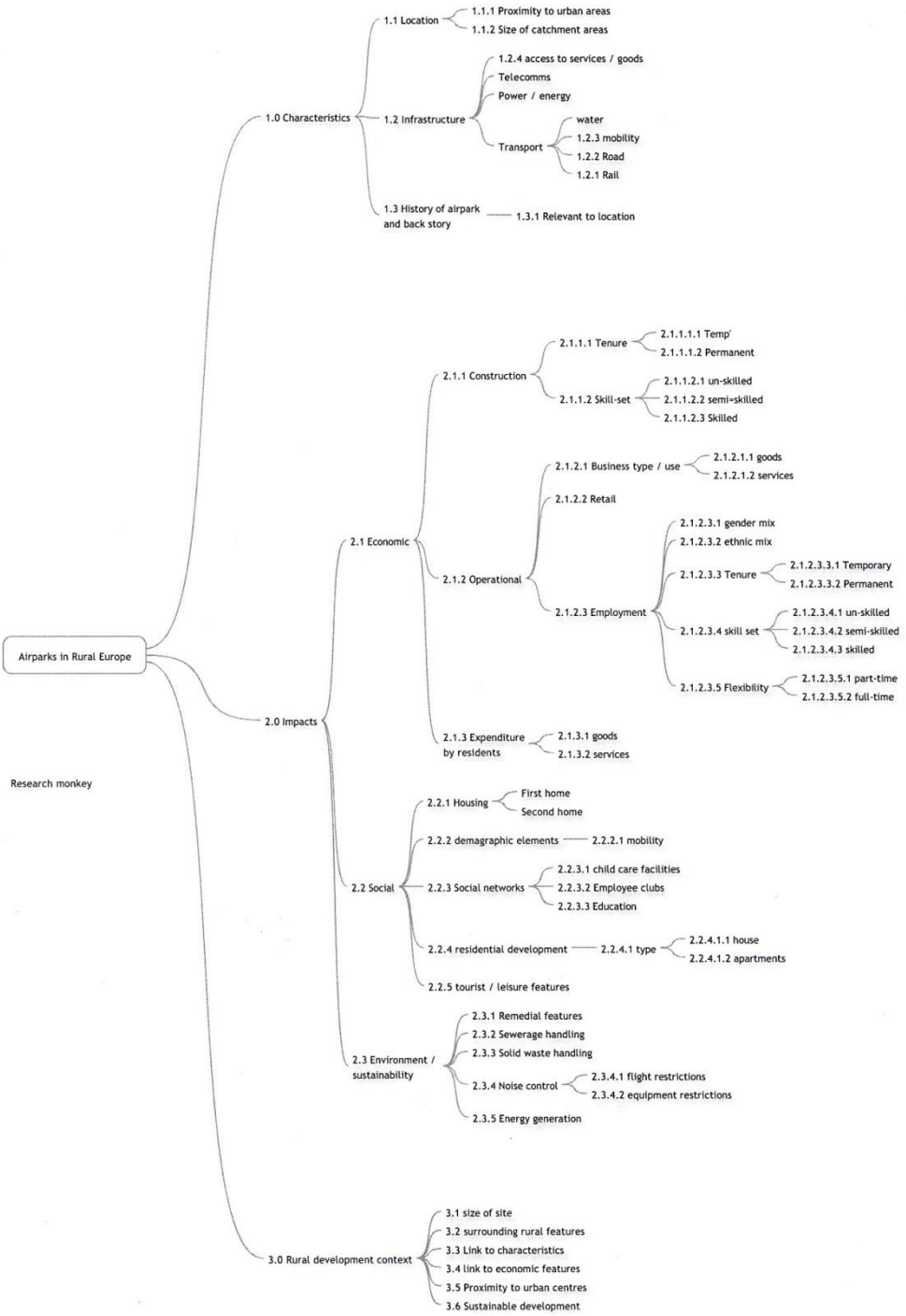
1. What will be the unity of analysis? i.e. person, experience, event?
2. Methods for analysis?
3. Validity

HOW WILL FINDINGS BE REPORTED

1. Describing the context
2. Conveying stakeholder/participants perspectives
3. Format to synthesise the data

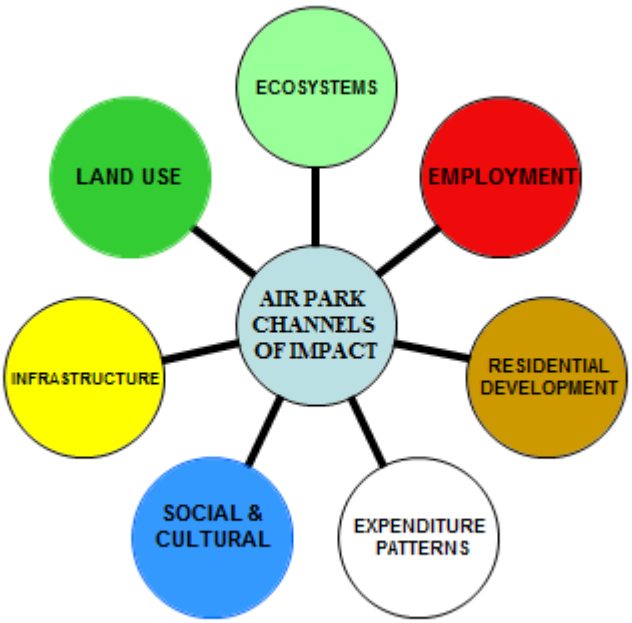
APPENDIX D

Research Mind Map



APPENDIX E POSSIBLE CHANNELS OF IMPACT

1



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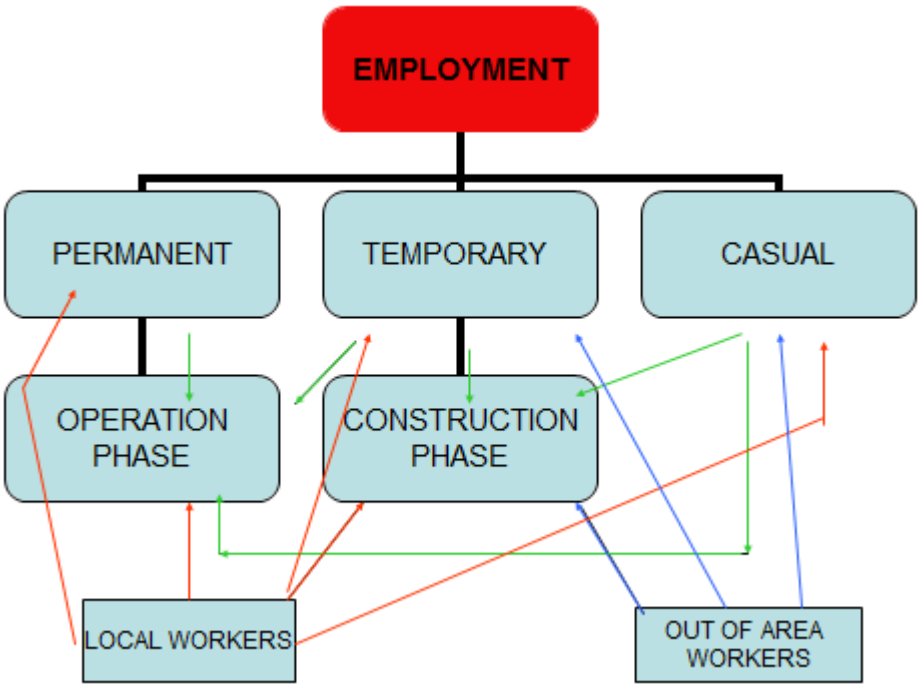
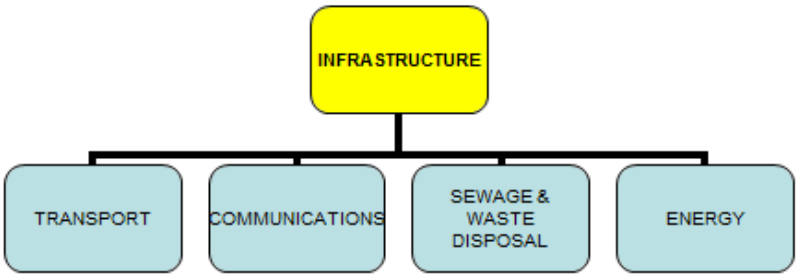


APPENDIX E cont. POSSIBLE CHANNELS OF IMPACT

3



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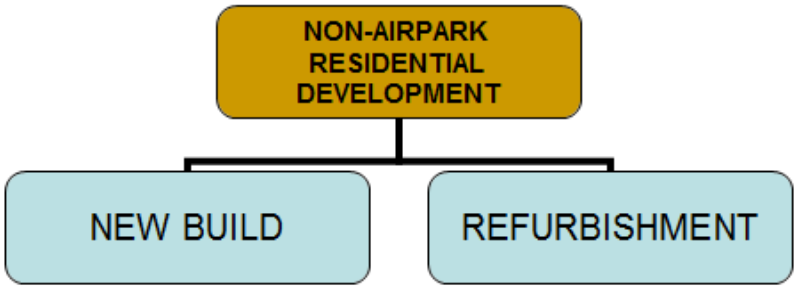

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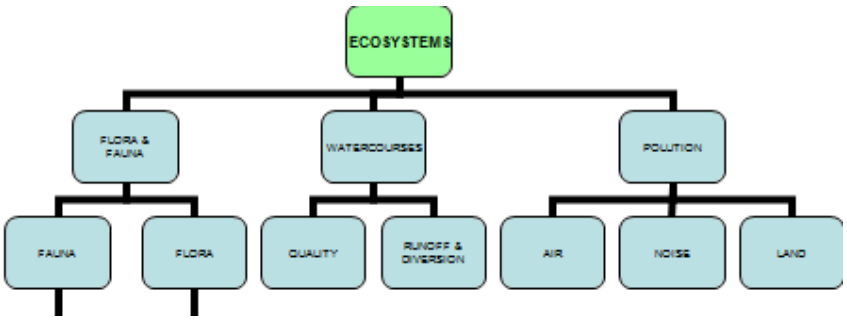

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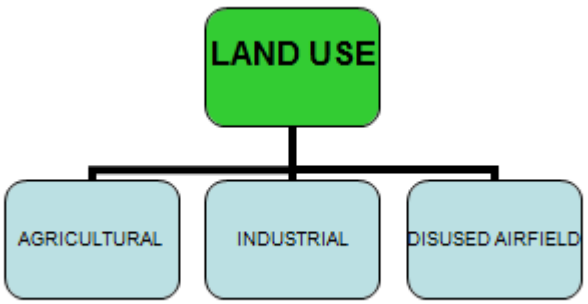
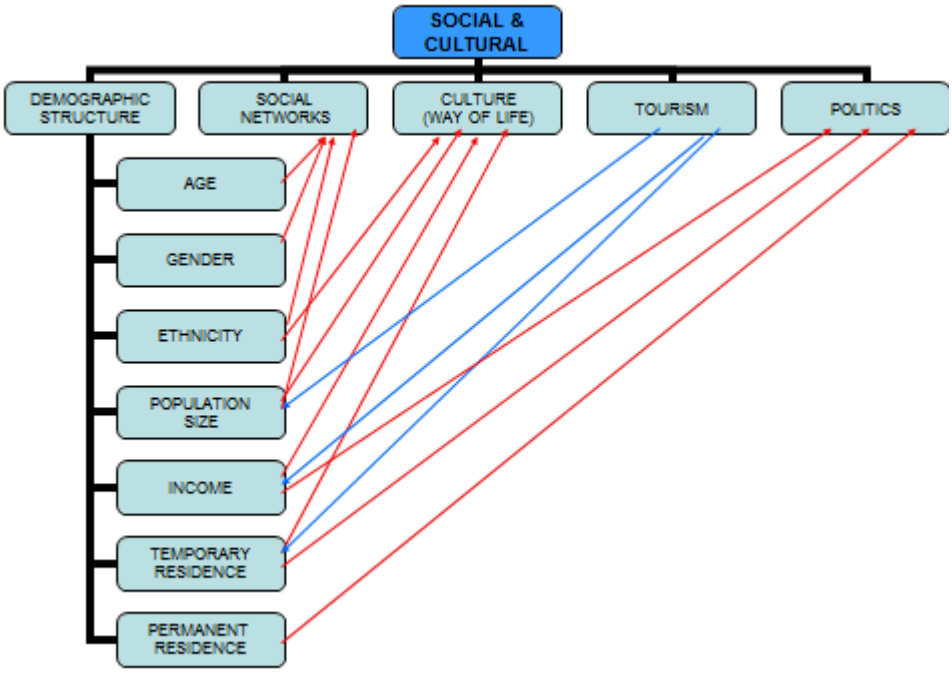
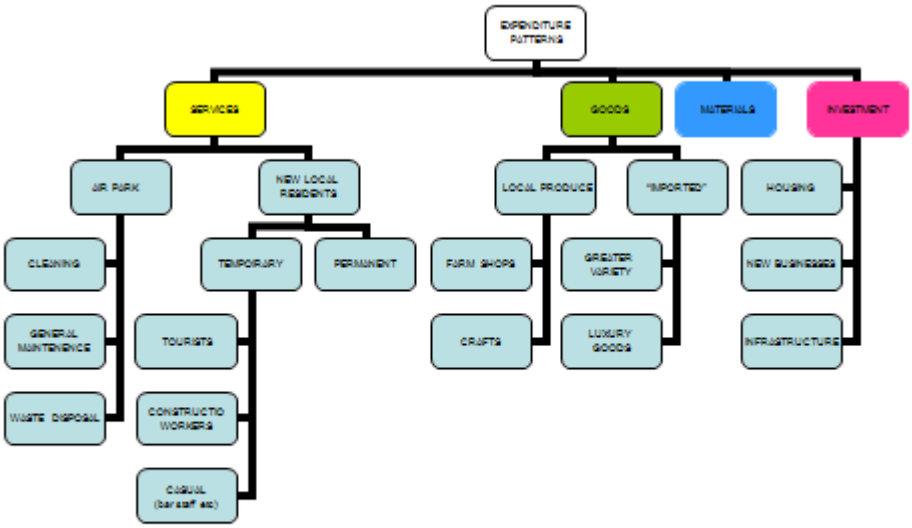


APPENDIX E cont. POSSIBLE CHANNELS OF IMPACT

7


SOCIAL & CULTURAL
DEMOGRAPHIC STRUCTURE
SOCIAL NETWORKS
CULTURE (WAY OF LIFE)
TOURISM
POLITICS
AGE
GENDER
ETHNICITY
POPULATION SIZE
INCOME
TEMPORARY RESIDENCE
PERMANENT RESIDENCE

8


EXPENDITURE PATTERNS
SERVICES
GOODS
MATERIALS
INVESTMENT
AIR PORT
NEW LOCAL RESIDENTS
LOCAL PRODUCE
"IMPORTED"
HOUSING
CLEANING
TEMPORARY
PERMANENT
FARM SHOPS
GREATER VARIETY
NEW BUSINESSES
GENERAL MAINTENANCE
TOURISTS
CRAFTS
LUXURY GOODS
INFRASTRUCTURE
WASTE DISPOSAL
CONSTRUCTIO WORKERS
CASUAL (bar staff etc)

APPENDIX F **PERMANENT RESIDENCE QUESTIONNAIRE**
LE VILLAGE AÉRONAUTIQUE DES LACS DE BISCARROSSE
SILJAN AIRPARK SILJANSNÄS

My name is Judith Wordsworth and I am an MSc student in European Rural Development at the University of Gloucestershire in the UK and doing my dissertation on "the positive and negative social, economic and environmental impacts a rural residential Airpark may have, and whether there are benefits to a rural community's sustainability and sustainable development." Jean-Luc Langeard has given me permission to use Le Village Aéronautique des Lacs de Biscarrosse and Carl Rönn and Johan Hammarström have given me permission to use Siljan Airpark as my case studies.

All information given will be treated with the utmost confidentiality. Please use either the English, French or Swedish Questionnaire. Thank you for completing this questionnaire, it is very much appreciated.

LOCAL = within 20 kms of Biscarrosse/ Siljansnäs REGIONAL = i.e. within 20kms Aquitaine/ Leksand NATIONAL= within France/Sweden

GENERAL

1. How many people are there in your household?
2. How many people are there in each of the following age groups?

0-16 …….. 17-22 ……. 23-35 …… 36-50 …….. 51-65 ……. 66+ ……..

3. Do you own an air craft?

If so what type of aircraft?

4. How many people in your household are pilots?
5. How many people in your household have a pilot's license?
6. How many people in your household are training to be private pilots
7. Approximately how many hours do you fly each year?
8. How long have you lived at the air park?
9. Did you buy your house already constructed?
10. Do you rent out your property at Village Aéronautique des Lacs/ Siljan Airpark when you are not in residence?

ECONOMIC

1. Your Airpark Property

a. Was your house designed by a local architect?
b. Was your house designed by a regional architect?

If yes, in which village/town are they based?

c. Was you house built by one local company?

Where are they based?

d. Were local tradesmen were used?
e. What type of local tradesmen were used e.g. electricians, plasterers etc.?
f. Materials used in the building of your property

a) Which materials were sourced **locally** and where from? Which materials were sourced regionally and where from?

b) Which materials were sourced nationally and where from?

2. EMPLOYMENT

a. Is anyone in your household employed locally?

b. In which village/town do they work?

c. Do they work

Full-time?

Part time? How many hours each week?

Temporary/Casual How many hours each month?

d. Does anyone in your household work from home?

Full-time?

Part-time? How many hours each week?

Temporary/Casual How many hours each month?

3. EMPLOYING

a. Does your household employ any **local** people? e.g. cleaners, caretakers, decorators, gardeners, repairers etc.?

b. are they employed:-

i. **Permanently full-time:** How many people?

What do they do? How many weeks each year? How many hours each week?

ii. **Permanently part-time**: How many people?

What do they do? How many weeks each year? How many hours each week?

iii. Temporary / seasonal employment: How many people?

What do they do? How many weeks each year? How many hours each week?

4. EXPENDITURE

a. Day to day

a) Approximately what percentage of your day to day shopping (food and consumables) purchases are made in:

1.**Local** Supermarkets %

In which villages/towns?

2.**Local** independent shops e.g. baker, butcher %

In which villages/towns?

3.**Regional** shops (+20 kms from Biscarrosse) %

Type of shops?

In which village/town?

b)

1. Online %
2. Other – please specify %

b. **Major Items** (e.g. furniture, electrical appliances, bicycles, cars etc)

a) Approximately what percentage of your major items are purchased

1. In **local** shops %

What type of goods?
From which villages/towns?

2. Regionally %

What type of goods?
From which villages/towns?

3. Nationally i.e. within France/Sweden

%

c. Entertainment

a) Approximately how many times each month do you visit **local** restaurants?

In which villages/towns?

b) Approximately how many times each month do you drink in **local** bars/cafes?

In which villages/towns?

c) Approximately how many times each month do you go to the **local** cinema?

What other **local** activities do you do in your spare time?

d. Services

a) Approximately how many Euros/SK each year do you spend with **local** service providers

1. Hair dressers + beauty
2. Fitness services e.g.gym, personal trainer
3. Medical /dentistry
4. Car servicing/repairs
5. Aircraft servicing/repairs
6. Clothes shops
7. Leisure equipment
8. Pharmaceuticals
9. Small household goods e.g. bed linen, towels, saucepans etc
10. Garden equipment and plants
11. Swimming pool maintenance
12. Other, please specify

SOCIAL Does anyone in your household:-

1. Belong to any **local** clubs or associations?

If yes, please specify which and where.

2. Volunteer/take part in any **local** organisations/charitable events?

If yes, please specify which and where.

3. Actively participate in **local** politics?
4. Do you regularly attend a **local** place of worship?
5. Belong to/ use the local library?
6. Has your household has integrated into local life?
7. Has your household been accepted into the local community or considered as "outsiders". If "outsiders" why do you think this is?

8. If your household has school aged children:-
   a. Do they attend **local** schools?

In which village/town?

   b. Do they attend any **local** clubs/organisations to e.g. sports/music etc. If yes, please specify what and where?
   c. Do they attend **local** after school activities e.g. music, tutoring, dance etc?

If yes, please specify what and where?

ENVIRONMENTAL

If General Light Aviation is thought to impact negatively on the environment in what ways, if any, does Le Village Aéronautique / Siljan Airpark Management is taking to decrease (or not increase) the environmental impact of its local aviation activities on

a. Noise pollution :
b. Air pollution:
c. Carbon footprint:

2. In what ways, if any, is your household is taking to decrease (or not increase) the impact of your **local** aviation activities on
   a. Noise pollution
   b. Air pollution
   c. Carbon footprint
3. Do you think the Airpark has contributed, in any way, to **local** biodiversity i.e. preservation of or increasing local fauna and flora?
   If yes, please specify how
4. Do you feel your household has contributed, in any way, to **local** biodiversity i.e. preservation of or increasing local fauna and flora?

If yes, please specify how?

APPENDIX G TEMPORARY RESIDENCE

LE VILLAGE AERONAUTIQUE / SILJAN AIRPARK

My name is Judith Wordsworth and I am an MSc student in European Rural Development at the University of Gloucestershire in the UK and doing my dissertation on "the positive and negative social, economic and environmental impacts a rural residential Airpark may have, and whether there are benefits to a rural community's sustainability and sustainable development." Jean-Luc Langeard has given me permission to use Le Village Aéronautique des Lacs de Biscarrosse and Carl Rönn and Johan Hammarström have given me permission to use Siljan Airpark as my case studies.

All information given will be treated with the utmost confidentiality. Please use either the English, French or Swedish Questionnaire.

Thank you for completing this questionnaire, it is very much appreciated.

LOCAL = within 10 kms of Biscarrosse/ Siljansnäs REGIONAL = i.e. within 20kms Aquitaine/ Leksand NATIONAL= within France/Sweden

General

11. How many weeks per year on average do you reside at the Airpark?
12. What is your main country/town of residence?
13. How many people are there in your household?
14. How many people are there in each of the following age groups?

0-16 …7-22 … 23-35 …… 36-50 …… 51-65 ……66+ ……..

15. Do you own an aircraft?
16. What type of aircraft?
17. How many people in your household are pilots?
18. How many people in your household have a pilot's license?
19. How many people in your household are training to be private pilots?
20. How long have you lived at Le Village Aéronautique / Siljan Airpark?
21. Approximately how many hours do you fly each year?
22. Approximately how many hours do you fly each year while at Le Village Aéronautique / Siljan Airpark?
23. Did you buy your house already constructed?
24. Do you rent out your Le Village Aéronautique /Siljan Airpark property when you are not in residence?

Economic

5. Airpark Property

a. Was your house designed by a **local** architect?
b. Was your house designed by a regional architect?
   If so in which town are they based?
c. Was you house built by one **local** company?
e. Where are they based?
f. Were local tradesmen employed to build your house?
. Which **local** tradesmen? e.g. electricians, plasterers etc.

i. Materials used in the building of your property

1. Which materials were obtained **locally**?

2. Which materials were obtained regionally?

3. Which materials were obtained nationally?

6. Employment

a. Does your household employ any **local** people?

If yes: How many people?

b. Are they employed

a) Permanent full time?

b) If yes, what do they do?

c) Permanent part-time (number of hours per week)

d) What do they do?

e) Temporary / seasonal employment (number of hours per month)

f) What do they do?

EXPENDITURE – whilst living at the airpark

a. Day to day

i. Approximately what percentage of your day to day shopping (food and consumables) purchases are made in:

1. **Local** Supermarkets %

In which villages/towns?

2. **Local** independent shops e.g. baker, butcher %

Types of shop and in which village/town

3. Regional shops %

Types of shop and in which villages/towns?

4. Online %

5. Other – please specify %

b. Major Items (e.g. furniture, electrical appliances, bicycles, cars etc)

i. Approximately what percentage of your major items are purchased

1. From **local** shops %

What type of goods? Which villages/towns?

2. From regional shops %

What type of goods? Which villages/towns?

3. Nationally i.e. within France / Sweden %

c. **Entertainment**

i. Approximately how many times a month do you visit **local** restaurants?

In which villages/towns?

ii. Approximately how many times a month do you drink in local bars/cafes? In which villages/towns?

iii. Approximately how many times a month do you go to the **local** cinema?

iv. What other **local** activities do you do in your spare time when you are at the Airpark and where?

d. **Services**

i. Approximately how many Euros/SK each year do you spend with **local** service providers?

1. Hair dressers + beauty
2. Fitness services e.g. the gym, personal trainer
3. Medical /dentistry
4. Car servicing/repairs
5. Aircraft servicing/repairs
6. Clothes shops
7. Leisure equipment
8. Pharmaceuticals
9. Small household goods e.g. bed linen, towels, saucepans etc.
10. Garden equipment and plants
11. Swimming pool maintenance
12. Other, please specify

SOCIAL

Does anyone in your household:-

9. Belong to any **local** clubs or associations?

If yes, please specify which and where.

10. Volunteer/take part in any **local** organisations/charitable events?

If yes, please specify which and where.

11. Do you ever attend a **local** place of worship?
12. Do you ever use local library services?
13. Has your household has integrated into **local** community life?

If yes, please specify

14. If your household has school aged children, do they attend any **local** clubs/organisations to e.g. sports/music etc. while they are at the Airpark

If yes, please specify which and where?

ENVIRONMENTAL

1. If General Aviation is thought to impact negatively on the environment in what ways, if any, does

(a) Le Village Aéronautique/ Siljan Airpark Management actively try to reduce the environmental impact of its **local** aviation activities:

a. Noise pollution :
b. Air pollution:
c. Carbon footprint:

5. Your household is taking/will take to decrease (or not increase) the impact your **local** aviation activities:
    a. Noise pollution
    b. Air pollution
    c. Carbon footprint
6. Has the Airpark contributed, in any way, to **local** biodiversity i.e. preservation of or increasing local fauna and flora?

If yes, please specify how?

4. Has your household contributed, in any way, to **local** biodiversity i.e. preservation of or increasing local fauna and flora in or around the Airpark?

If yes, please specify how?

APPENDIX H PLOTS IN CONSTRUCTION / AWAITING CONSTRUCTION

LE VILLAGE AÉRONAUTIQUE DES LACS / SILJAN AIRPARK

My name is Judith Wordsworth and I am an MSc student in European Rural Development at the University of Gloucestershire in the UK and doing my dissertation on "the positive and negative social, economic and environmental impacts a rural residential Airpark may have, and whether there are benefits to a rural community's sustainability and sustainable development." Jean-Luc Langeard has given me permission to use Le Village Aéronautique des Lacs de Biscarrosse and Carl Rönn and Johan Hammarström have given me permission to use Siljan Airpark as my case studies.

All information given will be treated with the utmost confidentiality. Please use either the English, French or Swedish Questionnaire.

Thank you for completing this questionnaire, it is very much appreciated.

LOCAL = within 10 kms of Biscarrosse/ Siljansnäs REGIONAL = i.e. within 20kms Aquitaine/ Leksand NATIONAL= within France/Sweden

GENERAL

25. How many people are there in your household?
26. How many people are there in each of the following age groups?

0-16 ……. 17-22 …… 23-35 ……36-50 ……51-65 …… 65+…….

27. Do you own an air craft?
28. If yes, what type of aircraft?
29. How many people in your household fly?
30. How many people in your household have a pilot's license?
31. How many people in your household are training to be private pilots?
32. Approximately how many hours do you fly each year?
33. Will you live permanently, i.e. as your main home, at Le Village Aéronautique des Lacs / Siljan Airpark?
34. If no, will you rent out your Village Aéronautique / Siljan Airpark property when you are not in residence?

ECONOMIC

7. Your Airpark Property

a. Is your house being designed by a local architect?
b. Is your house being designed by a regional architect?
c. If so in which village/town are they based?
d. Is your house being built by one local company?
e. If yes, where are they based?
f. If no, where they are based?
g. Are local tradesmen being used?
h. What type of local tradesmen are being used e.g. electricians, plasterers etc
i. Materials used in the building of your property

a) Which materials are being obtained **locally** and where from?
b) Which materials are being obtained regionally and where from?

c) Which materials are being obtained nationally i.e. within France. Where from?

8. EMPLOYMENT

If Le Village Aéronautique/ Siljan Airpark will be your main home will

a. Anyone in your household be employed locally?

b. In which village/town will they work?

c. Will they work

Full-time?
Part time? How many hours each week?
Temporary/Casual How many hours each month?

d. If anyone in your household will commute more than 25km to their main place of work, what mode of transport will they use to get to work?

e. Will anyone in your household work from home?

Full-time?
Part-time? How many hours each week?
Temporary/Casual How many hours each month?

9. EMPLOYING

a. Will your household employ any **local** people? e.g. cleaners, caretakers, decorators, gardeners, repairers etc

b. Will they be employed

i. **Permanent full time:** How many people?
(a)What will they do? (b) How many weeks each year? (c) How many hours each week?
ii. **Permanent part-time**: How many people?
(a)What will they do? (b) How many weeks each year? (c) How many hours each week?
iii. Temporary / seasonal employment: How many people?
Full-time
Part-time
(a) What will they do? (b)How many weeks each year? (c)How many hours each week?

10. EXPENDITURE

a. **Major Items** (e.g. furniture, electrical appliances etc)

a)Approximately what percentage of your major items for your new home will be purchased

1. In **local** shops %
What type of goods? From which villages/towns?
2. Regionally %
What type of goods? From which villages/towns?
3. Nationally i.e. within France/Sweden %
What type of goods? From which villages/towns?
4. Internationally %
What type of goods? From which country?

APPENDIX I

RESIDENTIAL AIRPARK MANAGEMENT QUESTIONNAIRE

Thank you for completing this questionnaire, it is very much appreciated. All information given will be treated with the utmost confidentiality.

ECONOMIC

1. How many homes are occupied permanently?
2. How many homes are occupied as holiday or second homes?
3. How many homes are currently under construction?
4. What is the maximum number of homes that can be built at Le Village Aéronautique des Lacs/ Siljan Airprk
5. How many plots are still to be released for sale?

Employment

6. **Construction stage:**
   a. Who was the developer of the Airprk
   b. Were **local** architects used to design the Airpark? Yes / No
   c. What works were carried out?
   d. How many **local** companies were involved in the Airpark construction?
      i. Which companies were involved? Where are they based?
      ii. Which regional companies were involved? Where are they based?
   e. What **local** materials were used in the airpark construction?
   f. Were any houses constructed by the Airpark developer

If yes, how many?

   g. Were **local** land agents used for selling the residential plots?

7. **Operational stage:**
   a. Does the Airpark have sole use of the airfield facilities?

If not, who else has regular use of the airfield facilities?

   b. How many **local** companies are contracted to work at the Airpark?
   c. Where are they based
   d. What do they do?
   e. How many regional companies are contracted to work at the Airpark?
   f. Where are they based?
   g. What do they do?
   h. How many national companies are contracted to work at the Airpark?
   i. Where are they based?
   j. What do they do?
   k. How many **local** people are directly employed by the Airpark?
      i. How many local people are permanently employed full-time?
      ii. What do they do?

iii. How many local people are permanently employed part-time?

iv. What do they do?
v. How many local people are Temporary/Casually employed?

vi. How many full-time

vii. How many hours each month in total
viii. What do they do?
ix. How many local people are Temporary/Casually employed part-time?
x. How many hours each month in total

xi. What do they do?

AIRPARK EXPENDITURE

1. What materials are regularly purchased **locally** for use at the airpark? E.g. cleaning materials, etc.?
2. Approximately how many Euros each year?
3. What materials are occasionally purchased **locally** for use at the airpark?
4. Approximately how many Euros each year?
5. What materials are regularly purchased regionally for use at the airpark?
6. Approximately how many Euros each year?
7. What materials are occasionally purchased regionally for use at the airpark?
8. Approximately how many Euros/ SK each year?

9. What aviation fuel(s) are available at the Airprk?
10. Are these fuels purchased and/or delivered from a local, regional or national supplier/s? Yes / No
11. Approximately how many Euros / SK each year?

SOCIAL

1. In what ways does the Airpark involve the **local** community socially?
2. In what ways does the Airpark contribute to the local community?

ENVIRONMENTAL

2. Was an environmental impact assessment carried out as part of the planning process?

If yes, is it possible for me to have a copy?

3. Has an environmental impact assessment been carried out since the airpark has been operational?

If yes, is it possible for me to have a copy?

4. If General Aviation is thought to impact negatively on the environment in what ways, if any, does the Airpark Management actively try to reduce the environmental impact of its **local** aviation activities:

   a. Noise pollution
   b. Air pollution
   c. Carbon footprint

5. In what ways, if any, has the Airpark contributed to local biodiversity i.e. preserving or increasing local fauna and flora?

APPENDIX J

NON-AIRPARK RESIDENT DISCUSSION GROUPS

My name is Judith Wordsworth and I am an MSc student in European Rural Development at the University of Gloucestershire in the UK and doing my dissertation on "the positive and negative social, economic and environmental impacts a rural residential Airpark may have, and whether there are benefits to a rural community's sustainability and sustainable development." Jean-Luc Langeard has given me permission to use Le Village Aéronautique des Lacs de Biscarrosse and Carl Rönn and Johan Hammarström have given me permission to use Siljan Airpark as my case studies.

All information given will be treated with the utmost confidentiality. Please use either the English, French or Swedish Questionnaire.

Thank you for completing this questionnaire, it is very much appreciated.

GENERAL

How many people are there in your household?
How many people are there in each of the following age groups?
0-16 ….17-22 … 23-35 …… 36-50 ……. 51-65 …… 66+ …….
How many years has your household lived in Biscarrosse/Siljansnäs?
Do you know anyone who lives at Le Village Aéronautique des Lacs / Siljan Airpark

ECONOMIC

11. EMPLOYMENT

a. Is anyone in your household employed at either Airpark?

b. If yes, do they work

Full-time? What do they do?

Part time?

What do they do? How many weeks each year? How many hours each week?

Temporary/Casual

How many hours each month? What do they do? How many weeks each year?

Do you know anyone who is employed at Le Village Aéronautique / Siljan Airpark?

Does anyone in your household work with anyone living at Le Village Aéronautique / Siljan Airpark?
What do you think is **economically good** for Biscarrosse/ Siljansnäs about having a Residential Airpark nearby

What do you think is economically bad for Biscarrosse about having a residential Airpark nearby

SOCIAL

Have Village Aéronautique/ Siljan Airpark households integrated into local life?
If yes, in what ways

If no, why do you think they have not

Has your household accepted Le Village Aéronautique/ Siljan Airpark residents into the local community or are they considered as “outsiders”.If “outsiders”, why is this ?
Does anyone in your household mix socially with anyone living at the Airpark?

Does anyone in your household attend events at Le Village Aéronautique/ Siljan AirparkIf yes, what events have they attended

What things about Le Village Aéronautique / Siljan Airpark do you think are **socially good** for Biscarrosse/ Siljansnäs

What things about Le Village Aéronautique/ Siljan Airpark do you think are **socially bad** for Biscarrosse/ Siljansnäs

ENVIRONMENTAL

If General Light Aviation is thought to impact negatively on the environment in what ways, if any, are Le Village Aéronautique / Siljan Airpark Management taking to decrease (or not increase) the environmental impact of its local aviation activities on:

a. Noise pollution :
b. Air pollution:
c. Carbon footprint:
d. Accidents involving aircraft

Do you think Le Village Aéronautique/ Siljan Airpark has contributed, in any way, to **local** biodiversity i.e. preservation of or increasing local fauna and flora?
If yes, please specify how?

What things about Le Village Aéronautique/ Siljan Airpark do you think are **environmentally good** for Biscarrosse/ Siljansnäs

What things about Le Village Aéronautique/ Siljan Airpark do you think are **environmentally bad** for Biscarrosse/ Siljansnäs

APPENDIX K

BUSINESS QUESTIONNAIRE / DISCUSSION GROUPS

My name is Judith Wordsworth and I am an MSc student in European Rural Development at the University of Gloucestershire in the UK and doing my dissertation on "the positive and negative social, economic and environmental impacts a rural residential Airpark may have, and whether there are benefits to a rural community's sustainability and sustainable development."

GENERAL

What does your business/company do?
In which town/village is it based?
How long have you been trading?
Have you ever visited Le Village Aeronautique / Siljan Airpark?

Approximately how many times
For business
For pleasure
Other
Please explain

EMPLOYMENT

Does your business employ anyone living at the Airpark?
If yes,
i. **Permanently full-time:** How many people?
What do they do? How many weeks each year? How many hours each week?

ii. **Permanently part-time**: How many people?

What do they do? How many weeks each year? How many hours each week?

iii. Temporary / seasonal employment: How many people?

What do they do? How many weeks each year? How many hours each week?

Has the Airpark had a positive impact on your business?
Please explain
Has the Airpark had a negative impact on your business?
Please explain
What do **you** think are the **economic** benefits of the Airpark to the local area

What do **you** think are its negative economic impacts

What do **you** think are the **social** benefits of the Airpark to the local area

What do **you** think its negative social impacts

What do **you** think are the **environmental** benefits of the Airpark to the local area

What do **you** think are its negative environmental impacts

SOCIAL

Do you know if anyone from theAirpark:-

Belongs to any **local** clubs or associations?
If yes, please specify which and where.

Volunteers or takes part in any **local** organisations/charitable events?
If yes, please specify which and where.

Actively participates in **local** politics?
Have Airpark families been accepted into the local community or are they considered as “outsiders” If “outsiders” why do you think this is?

APPENDIX L
LOCAL GOVERNMENT AGENCY / STAKEHOLDER QUESTIONNAIRE

My name is Judith Wordsworth and I am an MSc student in European Rural Development at the University of Gloucestershire in the UK and doing my dissertation on "the positive and negative social, economic and environmental impacts a rural residential Airpark may have, and whether there are benefits to a rural community's sustainability and sustainable development." Jean-Luc Langeard has given me permission to use Le Village Aéronautique des Lacs de Biscarrosse; Carl Rönn and Johan Hammarström have given me permission to use Siljan Airpark as my case studies.

All information given will be treated with the utmost confidentiality.

1. What is economically good for Biscarrosse/Siljansnäs?
2. What is economically not good for Biscarrosse/Siljansnäs?
3. Has Le Village Aeronautique / Siljan Airpark residents integrated into local life?

   If Yes: In what ways? If No: Why do you think this is
4. Has Biscarrosse / Siljansnäs accepted the Airpark residents into the local community or are they considered as "outsiders"? If "outsiders" why do you think this is?
5. What things do you think the Airpark could do to integrate more into local life?
6. What things about the Airpark are socially good for Biscarrosse/Siljansnäs?
7. What things about the Airpark are socially not good for Biscarrosse/Siljansnäs?

8. If General Light Aviation is thought to impact negatively on the environment in what ways, if any, are Le Village Aéronautique / Siljan Airpark Management taking to decrease (or not increase) the environmental impact of its local aviation activities on
   a. Noise pollution:
   b. Air pollution:
   c. Carbon footprint:
   d. Accidents involving aircraft

7. Do you think Le Village Aéronautique/ Siljan Airpark has contributed, in any way, to local biodiversity i.e. preservation of or increasing local fauna and flora?
   If Yes, please specify how?

8. What things about Le Village Aéronautique/ Siljan Airpark do you think are environmentally good for Biscarrosse/ Siljansnäs?

9. What things about Le Village Aéronautique/ Siljan Airpark do you think are environmentally bad for Biscarrosse/ Siljansnäs?

APPENDIX M

School at Work

Theme 1

Edutainment
School@Work

The School@Work project is based in Siljansnäs in the County of Dalarna, but it could in fact be regarded as a national project.

"Our project focuses on two main areas," says Carl Rönn, the co-ordinator of School@Work. "F irst, we aim to find methods for developing a better school. This involves, among other things, combining education and entertainment – something we call edutainment. Second, we will work with a target group consisting of people who are 55 or older and out of work, but who are willing and able to go on working in some way."

School@Work consists of four subprojects, two small and two large. A subproject entitled *Enthusiasts Academy* aims to develop a forum for enthusiasts and innovators in which new ideas can be developed and receive support. The *ProSeed* subproject deals with funding, and one of its aims is to find ways of helping various social projects to survive beyond the end of the project period. Both of these subprojects will probably end up as some form of independent operation, or in another organisation that will continue working in these areas.

The remaining two projects are unique, and have the theme of flight as their common denominator.

"The subproject *Siljan Flying Circus* is a concrete and exciting school project involving collaboration between the entertainment industry and schools," says Carl Rönn. "One target group consists of teenagers, and here we will be working in co-operation with non-government organisations. We are turning in particular to those teenagers who have problems at school. The idea is that those who have not matriculated for the upper-secondary school and who are now following an individual programme should be given a greater chance to achieve integration into the other upper-secondary school programmes. By combining entertainment and education we aim to make these young people more motivated to take responsibility for their own development."

"The other target group consists of people who are 55 years old or older who are on a pension or are out of work. These may be people who are on disability pensions, partial pensions, old-age pensions or supplementary pensions. The skills and expertise of these people, and the experience that comes with their age, can be used to improve the work of the schools."

"These days, many young people do not have particularly good contacts with the older generation. By making use of the competence and experience that the 55+ age group has, and by integrating them into the schools, we can create good role models for the students. Even though these older people are not qualified teachers, they can act, for example, as "class granddads" and as a complement to the regular teacher. This is actually something that we did in an earlier project, and it met with a very

positive response. In this earlier project, pensioners worked in parallel with regular teachers. Now we aim to build on this idea," says Carl Rönn.

The idea behind *Siljan Flying Circus* is to develop a unique outdoor theatre. Members of the younger and older generations will join forces to plan and build this theatre, and then work together to run its activities. This will facilitate the transition from school to working life.

"The work of the schools can always be improved and diversified, which is important I think. This is both a sensible and fun way of doing it," says Carl Rönn.

Another aim of *Siljan Flying Circus* is to give young people the opportunity to learn English. This comes in naturally as a lot of the documentation on aircraft is in English. Different methods for teaching English are one of the priorities of the future collaboration with the Partnerships in Germany and Italy.

"The fact that schools in several municipalities will work together is something that is rather new," says Carl Rönn. "We are forming a public foundation, *Siljan Flying Circus*, in which the schools will be stakeholders. One of our concrete and important objectives is that the project should be a lastingly self-financing operation that will eventually run under its own steam."

The *Silent Wings* subproject is aimed at a different target group – people with a hearing disability. This project will work in a general way with disability issues and flying, and help to iron out inequalities between those who are disabled and those who are not.

In the field of aviation there is an airspace classification that does not stipulate radio communication as a requirement. The landscape in Dalarna is open enough to be suitable for gliding, and the county is largely covered by this airspace classification.

"If there is no engine or radio in the aircraft, then it doesn't really matter if you are deaf," explains Carl Rönn. "We will try to find ways of giving deaf people the opportunity to begin gliding on their own in the airspace above Siljansnäs. Another objective is to develop a special course for flying instructors so that they will be authorised to train deaf students. The project will result in a final report to the Swedish Civil Aviation Administration. This report will in turn form the basis for decisions on whether to issue gliding certificates to people with a hearing disability and on whether it is possible to give these activities a permanent form."

"I can see several areas in which we will co-operate with the German project. One idea is for *Siljan Flying Circus* to produce a play set in the period around World War I, where we build up Germany and France in miniature. We will probably also collaborate with Italian and French Transnational Partners," says Carl Rönn.

Facts

Development Partnership Co-ordinator:
F18 Flygverkstaden/Siljan Flying Circus

APPENDIX N

Article in Dala-Demokraten

DALA-DEMOKRATEN
LEKSAND GAGNEF VANSBRO MALUNG

Björnparken i Orsa fyller 25 år
SIDAN 12

Jenny, 15, siktar på att bli proffskusk
SPORT SIDORNA S8-29

2 dagar kvar till Rockstad: Falun
NÖJE SIDORNA 22-23

Dagens namn: Gun och Gunnel
NR 126 • VECKA 22 • ONSDAG 1 JUNI 2011 • ÅRGÅNG 94 • 15 KR

Hon forskar om Siljans AirPark

SILJANSNÄS

Kan Siljan AirPark få betydelse för bygdens utveckling ekonomiskt och socialt? Det ska en masterstudent från Storbritannien ta reda på. Hon studerar Europeisk landsbygdsutveckling och hennes studieobjekt är flygparker i Frankrike och i Siljansnäs. Just nu intervjuar hon företag och människor runt Siljan AirPark.

Judith Wordsworth studerar på universitet i Gloucestershire i England. Hon har ett stort intresse för Airparks. Det finns inga i England, för tio år sedan gjordes två försök, men de stoppades av miljöskäl.

– Man gjorde bara en miljöutredning, ingen ekonomisk eller social, säger Judith Wordsworth.

Bakgrunden till hennes forskning är att många byar på landsbygden är på väg att dö ut. Jordbruksstödet minskar, det unga flyttar och servicen försämras. Hon vill veta om en AirPark med nya människor kan få byarna att leva upp.

– I Storbritannien finns mängder av gamla flygfält från andra världskriget som inte används, de skulle kunna bli en tillgång.

I Frankrike finns många flygparker, till skillnad från Siljansnäs bor människor där permanent.

– Det blir fler barn i skolorna, affärerna får bättre kundunderlag och serviceföretag kan starta i bygden.

I sin forskning slår hon hål på myten att alla som bor i en AirPark är rika.

– Man kan köpa ett begagnat plan för mindre än en bil kostar, säger hon. Ultralätta plan drar 11 liter i timme, det betyder att man kan flyga från Siljansnäs till Stockholm på åtta liter. Det klarar ingen bil.

En av frågorna hon ställer till dem som bor i parkerna är mycket de flyger, svaren är 12-20 timmar per år. Det tycker hon är ett svar till dem som är rädda för mycket buller. Hon berättar att i Siljan AirPark finns elva olika nationaliteter som bör kunna ge området nya influenser. Flera av dem hon intervjuat säger att de skulle vilja bo i Siljansnäs året om.

Själv håller hon på att ta flygcertifikat men hennes forskningsrapport kommer att vara neutral och ta med både positiva och negativa synpunkter.

Nu ställer hon frågor till företag trakten hur de upplevt flygparken. Hon kommer också att ställa frågor till privatpersoner. De garanteras anonymitet. Hon kommer att finnas i Siljansnäs till på lördag, men vill också gärna ha mail från människor om vad de tycker.

Mailadressen är: jswordsworth@hotmail.com.

EVA HÖGKVIST

Judith Wordsworth är i Siljansnäs för att forska om Siljan AirParks betydelse för bygden. FOTO: EVA HÖGKVIST

11.45 på måndagen.

En man hade just tagit ut pengar när två män kom fram och sa att han tappat en sedel på marken. Mannen tog upp sedeln och gick därifrån. Efter en liten stund började han fundera på det som hänt, tog upp sin plånbok och konstaterade att bankkortet var borta. Han skyndade tillbaka och fick på banken veta att ett uttag på 3 800 kronor gjorts på hans konto.

Troligen har tjuvarna sett när mannen slog in sin kod och stulit kortet när han böjde sig ned efter sedeln.

Signalementet på tjuvarna är att de är mellan 160 och 170 cm långa, en med lockigt hår och en med märkt kortklippt hår.

Konsum ordnar en dag för barn

LEKSAND 11 juni vill Coop Konsum i Leksand arrangera en egen lördag för barn. Om alla tillstånd faller ut kommer Konsumparkeringen att stängas av för bilar. I stället ska barnen få ta plats. Hoppborg ska det bli, godisregn och chokladlotteri med mera.

APPENDIX O

The Future?

NEWS THE SUNDAY TIMES thesundaytimes.co.uk/news 17.07.11 15

£150,000 flying car revs up for takeoff

Mark Harris and Cal Flyn

A FLYING car could be cleared for takeoff within five years in Britain after winning formal approval in the United States.

The vehicle's maker claims more than 20 Britons have already expressed their interest in splashing out £150,000 on the Terrafugia Transition, a sporty two-seat plane that transforms into a car at the touch of a button.

It flies for almost 500 miles on a single tank of fuel and can be flown with a light sports aircraft licence, which requires 20 hours of training. On the ground the Transition takes a mere 15 seconds to fold up its wings and switch its motor from spinning the rear-mounted propeller to driving the rear wheels. It can drive at up 65mph on land at a frugal 42mpg and squeezes into a standard-sized garage.

"It's like a little Transformer," says Carl Dietrich, the founder and chief executive of Terrafugia, likening it to the animated film characters.

Transitions have been marketed largely to buyers in America, where airstrips are common and there are more than 600 "fly in" communities — towns where every house has its own hangar.

However, the plane's creators said they had received plenty of calls from people in Britain. Sir Richard Branson, who has set a world record for crossing the Channel in an amphibious car, said: "What a great idea. I'd absolutely like to hear more, and I'm going to look into it myself."

To be cleared for flight in Britain the flying car — or "roadable aircraft" as the company prefers to put it — would need to be approved by the European Aviation Safety Agency (EASA) based in Cologne. But aviation experts say that the clearance could be achieved quickly.

Jonathan Nicholson, of the Civil Aviation Authority, said: "For a small light aircraft like this, it needn't be especially expensive or time-consuming, as the bulk of the work has already been done in the US. Safety standards are very similar between there and Europe."

The first batch of Transitions is scheduled for delivery late in 2012. They will go straight from the production line to the 100 customers who have paid their £6,200 deposit.

Sherry Grobstein, a software engineer from Massachusetts, was one of the first to hand over the cheque. "I think it's the coolest idea in the universe," she said. "With the Transition, I can fly somewhere and if the weather isn't good enough to fly back, I can just drive home. Or when I get to an airstrip, I can explore nearby restaurants without renting a car."

Like many light aircraft owners in America Grobstein uses her current plane, a Cessna 150, for weekends away and for "$100 burgers" — amateur aviator slang for fly-in lunches at airport diners where it costs $5 for the burger and $95 for the fuel to get there. She admits the Transition is unlikely to help her budget.

"When I first ordered the Transition, it cost around $170,000. The latest price is $250,000 and it keeps creeping up. I'm keeping my fingers crossed that it will go down to something more reasonable."

The flying car nearly failed to get airborne at all. A successful maiden flight impressed pilots but also uncovered technical problems that forced sweeping design changes.

By last summer the flying car project seemed to have stalled. Plans for a new prototype were still on the drawing board, suppliers let the company down and money was running low.

The final straw was a slew of extra safety measures to permit the Transition to drive on public roads. These included special tyres and a stability control system. By Terrafugia's calculations, adding all of them would cost $19m (£12m), probably putting the small company out of business.

The unlikely saviour of the flying car was the US military, which awarded the company a £40m contract to develop a flying Humvee. Codename: Transformer.

The financial injection has allowed the company to double in size, and it is now putting the finishing touches on two Transition prototypes.

"These prototypes will be close to the final production version," said Richard Gersh, vice-president of Terrafugia.

Last month, the National Highway Traffic Safety Administration announced exemptions to allow the vehicle on American roads.

APPENDIX P

Biscarrosse Invitation to Discussion Group

Mr Jean-Michel NOTAIRE
Mme Annie PLANTEY
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INVITATION

Biscarrosse, le 11 avril 2011

Madame, Monsieur,

Mme Judith WOODWORTH, Etudiante en « *Maîtrise en Développement Rural Européen* » à l'Université du Gloucestershire (Angleterre), est présente sur le site du Village Aéronautique des Lacs de Biscarrosse jusqu'au samedi 16 avril.

Dans le cadre de sa thèse sur « *Les impacts sociaux, économiques et environnementaux d'un village aéronautique* », elle souhaite rencontrer des acteurs de la vie locale pouvant utilement l'aider dans son projet, comme elle l'a déjà fait sur d'autres sites en Europe et en France.

Aussi, nous souhaiterions vivement vous accueillir, vendredi 15 avril en fin d'après-midi, pour une réunion d'une heure environ, lors de laquelle Judith WOODWORTH pourrait recueillir vos avis et commentaires, réunion que nous conclurons par un apéritif.

Vous remerciant par avance de votre confirmation avant mercredi 13 avril au soir, afin d'organiser au mieux cette prochaine rencontre,

Nous vous adressons, Madame, Monsieur, nos meilleures salutations.

Mr JM Notaire