



(INstruments and NETworks for developing logistics towards Sustainable Territorial Objectives)

**Contract n° EVG1-CT-2001-00054**

# **District Logistics Analysis of**

**“The Casentino case study”**

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# 1. Executive summary

The objective of the District Logistics Analysis (DLA) carried out in the Casentino area was to identify the main characteristics of the material flows and the businesses performances. To this end a questionnaire was elaborated and a sample of key businesses was selected. Interviews followed. The information obtained regarding logistics flows were then used to determine the economic fabric of the Casentino Valley. The results concerning business performances were utilised to determine profiles (corporate “ideal-type”) according to a benchmarking method.

The main indicators utilised to analyse *material flows* were: tonnes, Tkm, distances, territory interested (inside and outside the Valley), load typologies, transport modes, typology of matter transported, transport costs.

The indicators utilised to analyse *Business performances* were those of the balance sheets with more in depth questions focusing on the 10 aspects of the SDL Orientation.

The results are integrated into a Regional Profile, where the main characteristics of the logistics flows and businesses performances were evaluated in terms of strengths, weaknesses, opportunities and threats (SDL / SWOT analysis), taking into account the relationships between the sample and the Casentino entrepreneurial fabric. The results of the SDL / SWOT analysis were compared to those emerged from the Local Context Analysis (LCA).

Hypotheses of innovative option according to the SDL approach were identified, compared and integrated to those emerged from the Local Context Analysis (LCA), as summarised in the below Regional Perspective.

The correlation between the LCA hypotheses and the DLA findings is further explained in **Section 2**.

**Section 3** gives the details on the SDL/SWOT analysis of the District Logistics Analysis.

**Section 4** presents the results concerning logistics flows.

**Section 5** analyses in depth the businesses performances.

## Regional profile

A sample of businesses was chosen to represent the overall economic fabric of the Casentino Valley. Businesses were selected according to sector (agriculture, industry and services) and location (the thirteen municipalities) respecting both population and employment quantities. 40 companies were selected and directly interviewed with the assistance of field-workers. Answers obtained covered the 92% of the local units considered in the sample.

Municipality	Sample			
	Agriculture	Industry	Services	Total
Bibbiena	3	5	3	11
Capolona	0	1	2	3
Castel Focognano	0	1	0	1
Castel San Niccolò	0	0	0	0
Chitignano	0	0	0	0
Chiusi della Verna	0	1	0	1
Montemignao	0	0	0	0
Ortignano – Raggialo	0	1	0	1
Poppi	1	4	5	10
Pratovecchio	2	1	1	4
Stia	0	1	2	3
Subbiano	0	1	1	2
Talla	1	0	0	1
Casentino total	7	16	14	37

From an employment point of view, the sample can be considered representative since there is a statistical error of 1,95% determined by the comparison between the 2.036 employed of the sample and the 9.147 employed in the corresponding activities of the entire Casentino Valley (data source: Chamber of Commerce). Even though the sample is more representative in the industry sector and services than in agriculture, the results maintain a good statistical tolerance due the importance played by the interviewed companies in terms of logistics flows and business performances.

The procedure to utilise the sample results to represent the Casentino economic fabric was based on specifically differentiated calculation for each sector (agriculture, industry and services) with relation to the employment dimension of the companies.

Redundancy was considered between the data on transport flows (Tkm) provided by the transport companies (third parties' account) and those declared by the companies of the other sectors (in part transport on own account and largely as third parties' services).

The inference gave a result that corresponds nearly exactly to the estimates formulated in the Local Context Analysis: 164 millions of Tkm.

As a conclusion, data collected from the District Logistics Analysis equalled the 48% of the total Tkm estimated in the Local Context Analysis and confirmed by the statistical inference: 79.133.112 (sample results) in front of the total amount of 164.177.600 (estimated data).

The District Logistics Analysis provided the following profile that concerns the companies interviewed between June and September 2003.

		S	W	O	T
		Strengths	Weaknesses	Opportunities	Threats
O1	Environment	●●	●●●●	●●●●	●●●
O2	Economy	●●●	●●●●	●●●	●●●●
O3	Socio-culture	●●	●●●●	●●●●	●●●●
O4	Equity between individuals	●●●	●●●	●●●●	●●●●
O5	Equity between territories	●●	●●●●●	●●●	●●●●
O6	Equity between generations	●	●●●●●	●●●●●	●●●●
O7	Diversity	●●●	●●●●	●●●●●	●●●●
O8	Subsidiarity	●●●	●●●●	●●●	●●●
O9	Networking and partnership	●●●	●●●●●	●●●	●●●●
O10	Participation	●●●	●●●●	●●●●●	●●●●

Compared to the regional profile resulted from the SDL / SWOT analysis of the Casentino Valley (see below), some differences emerge revealing: less Strengths and more Threats; more Weaknesses and Opportunities.

		S	W	O	T
		Strengths	Weaknesses	Opportunities	Threats
O1	Environment	●●●●	●●●	●●●	●●●●
O2	Economy	●●●●	●●●	●●●	●●●
O3	Socio culture	●●●	●●●●	●●●	●●●
O4	Equity between individuals	●●	●●	●●●	●●●
O5	Equity between territories	●●●	●●●	●●●	●●●
O6	Equity between generations	●●●	●●●	●●	●●●●
O7	Diversity	●●●●	●●●	●●●	●●
O8	Subsidiarity	●●●●	●●●	●●●●	●●●
O9	Networking and partnership	●●●●	●●●	●●●	●●●
O10	Participation	●●●●	●●●●●	●●	●●●

## Regional Perspective

The hypotheses of innovative actions (Strengths + Threats # Weaknesses and Weaknesses + Opportunities = Strengths) stemmed from the District Logistics Analysis (DLA) call for a close complementarity with those elaborated in the Local Context Analysis (LCA). The integration between them (LCA + DLA) is necessary to create a Plan for Sustainable Accessibility in the Casentino Valley. In fact (see Section 2):

**Table: cluster of hypothesis of innovative options**

Combination between the SQM / SDL aspects: Dynamics (D), Social Potential (P), Orientation (O)	Combination between the hypotheses of innovative actions		
	LCA results		DLA results
D1 - Enhancing problem understanding P1 - Perception of a variety of development approaches O1 - Environment O2 - Economy	A permanent structure to create a Plan for Sustainable Accessibility	is a necessary instrument	to promote corporate commitment and strategy
D3 - Negotiation and co-decision P3 - Capacity to cope with complexity and to anticipate change P10 - Shared value system taking into account environmental, socio-cultural and economic interdependencies P15 - Access to information and dialogue O9 – Networking and partnership	A roundtable on logistics issues with the involvement of a large variety of stakeholders	is an useful instrument	to elaborate territorial marketing and integrated logistics networks
D6 - Result orientation P2 - Entrepreneurial creativity and innovation P5 - Discovery and re-encoding of the local specificities and knowledge P7 - Fractal distribution of responsibilities and competence P8 - Facilitating structure for autonomy and collaboration into the decision-making P9 - Primary reliance on the endogenous resources without compromising the ones of the others O7 – Diversity O8 – Subsidiarity	A long term monitoring and evaluating system	gives better results if it is integrated with	a stable benchmarking system on business good practices through the collaboration of enterprise associations

Combination between the SQM / SDL aspects: Dynamics (D), Social Potential (P), Orientation (O)	Combination between the hypotheses of innovative actions		
D4 - Creation of a shared vision P13 - Capacity for creating shared visions of local development P16 - Existence of facilitators and animators of multiple interactions O10 – Participation	A group of local facilitators for “win-win” solutions	gives a fundamental support	to create and manage the “quality circles” that are at the basis of environmental and social marketing
D2 - Open collective learning P14 - Integration of social and technical skills for innovative processes O3 – Socio-culture	A “centre of resources” integrated to the LA 21 elaboration and implementation	gives a consistent help	to facilitate company investments in human capital
D5 - Client orientation P4 - Enrichment of the local knowledge to create a cohesive multicultural environment P6 - Ability to reach optimal levels of attainment and fulfilment of life P11 - Social cohesion P12 - Opportunity and room for fair interactions O4 – Social equity (between individuals) O5 – Inter-local equity (between territories) O6 – Inter-temporal equity (between generations)	Training and e-learning methods	are necessary tools	to improve entrepreneurial knowledge and strategy in disseminating the principles of social and environmental quality

## 2. Correlation between the DLA findings and the LCA hypotheses of innovative options

The District Logistics Analysis (DLA) identified some hypotheses of alternative options considering the answers provided from the interviewed businesses on their logistics flows and performances (see section 3. SDL / SWOT analysis). These hypotheses have a positive correlation with those resulted from the Local Context Analysis (LCA), as shown by the following tables.

O1 – Environment / O2 – Economy	
LCA - 1 <sup>st</sup> main hypothesis	DLA findings
<p>To create a permanent structure for the study of sustainable logistics where local professionals interact with local and regional bodies to create a Plan for Sustainable Accessibility in Casentino. This structure will have the responsibility to coordinate hypothesis 2, 3, 4, 5 and 6.</p>	<p>To promote the corporate environmental commitment and to favour changes in business strategy on logistics management opening a long-term path aimed at reducing road transport in favour of rail mode with immediate measures that rationalise freight transport organisation.</p>
<ul style="list-style-type: none"> <li>• combination of attempts stemming from local initiatives in favour of sustainable development</li> <li>• investments in e-logistics and e-commerce supported by the e-government network</li> <li>• a co-ordinated organisational and management system of the supply and distribution chains based on freight rail transportation (e.g. night-freight-trains) combined with light freight road transportation (e.g. share-a-ride / vanpool)</li> <li>• an inter-modal transport system based on linear connection by railway and transversal connections by road networks</li> <li>• an integrated system (local network between the municipalities) to monitor and evaluate the total costs (economic, social and environmental) of the logistics structure and the impacts of logistics fluxes on the territory utilising a series of strategic indicators (qualitative and quantitative) that orient local stakeholders towards the quality improvement of business and spatial planning</li> </ul>	<ul style="list-style-type: none"> <li>• exchange of good entrepreneurial practices towards sustainable development</li> <li>• integration of local resources (financial, technical and managerial) to support local businesses</li> <li>• flexible (e.g. dial-a-ride) but in common (e.g. share-a-ride) services (e.g. van-pool) of supply and distribution, supported by the e-government network and privately managed</li> <li>• consolidation of freight loads in small logistics centres located in the existing railways stations and supported by ICT</li> <li>• improvement of railways services (e.g. night-freight-trains) connected with the regional and national railways networks</li> <li>• specific logistics plans co-decided between the large companies and the public authorities</li> <li>• business investments in e-logistics and e-commerce integrated into the e-government network</li> <li>• an annual award in service-voucher especially for small and medium sized enterprises</li> </ul>

O9 – Networking and partnership	
<b>LCA – 2<sup>nd</sup> main hypothesis</b>	<b>DLA findings</b>
To create a roundtable on logistics issues, with the involvement of a large variety of stakeholders for planning logistics fluxes, integrating accessibility issues into Local Agenda 21.	To involve local stakeholders in territorial marketing (e.g. local brands) and integrated logistics networks
<ul style="list-style-type: none"> <li>• investment in impact analysis, monitoring and evaluating systems, research, learning and training</li> <li>• creation of an integrated communication centre for public information on the issues related to sustainable development and logistics issues, enlarging the scope of the e-government network</li> </ul>	<ul style="list-style-type: none"> <li>• creation of clusters and networks of supply, production and consumption with the collaboration of environmental departments and agencies as well as with the integration of this issue into the elaboration of the Valley Local Agenda 21</li> <li>• close relationships with international and European networks on CSR and sustainable businesses</li> </ul>

O7 – Diversity / O8 – Subsidiarity	
<b>LCA – 3<sup>rd</sup> main hypothesis</b>	<b>DLA findings</b>
To organise a long term system for monitoring and evaluating in order to assist logistics stakeholders to improve their activities in terms of economic, social and environmental diversification and to facilitate the participation of logistics stakeholders in integrated decision making	To support business innovation, creativity and investments to elaborate a plan concerning the promotion of the corporate environmental and social responsibility (CSR)
<ul style="list-style-type: none"> <li>• a specific budget dedicated to logistics development (e.g. integration of public and private financial resources)</li> <li>• a permanent monitoring system of the local, external and transit fluxes of freights</li> <li>• clear criteria on stakeholder analysis and involvement in the public decision-making according to the specific field of problems, issues, policies and services</li> <li>• programmes and projects to stimulate analogous methods in corporate strategies on a volunteer basis, providing financial support and technical assistance to disseminate CSR specifically in favour of existing small businesses and enterprise creation</li> <li>• a Charter of main orientation principles and procedures to implement an integrated management of local plans</li> <li>• development of methods of project financing based on clear protocols and agreements that respect local autonomy in decision-making</li> </ul>	<ul style="list-style-type: none"> <li>• a stable benchmarking system on local and international good practices accompanied by enquiries, research and scientific studies on biological, social, cultural and economic diversity</li> <li>• clear criteria to involve all the enterprise associations and sectors (agriculture, industry and services), experts, NGOs, public and private development agencies</li> </ul>



O10 – Participation	
<b>LCA – 4<sup>th</sup> main hypothesis</b>	<b>DLA findings</b>
To create a group of local facilitators for “win-win” solutions, participation of local stakeholders, elaboration of locally -adapted methodology.	To support local businesses (especially small and medium sized enterprises and farms) in the elaboration of environmental and social marketing
<ul style="list-style-type: none"> <li>• involvement of existing local development agencies and agents</li> <li>• application for a new professional profile that combines sustainable development and logistics knowledge</li> <li>• specific training courses</li> </ul>	<ul style="list-style-type: none"> <li>• creation of a few numbers of “quality circles” per sectors and activity with the involvement of stakeholder samples (e.g. households, customers, suppliers, consumers’ associations, environmental organisations).</li> </ul>

O3 – Socio-culture	
<b>LCA – 5<sup>th</sup> main hypothesis</b>	<b>DLA findings</b>
To create of a “centre of resources”, integrated with Local Agenda 21 structures, in which knowledge, know-how and skills in sustainable logistics are developed year by year also through specific courses, seminars and workshops.	To facilitate company investment in human capital,
<ul style="list-style-type: none"> <li>• integration of several financial resources and plans, e.g. EU – ESF Ob. 3 (provincial plan for vocational guidance and training), Community Initiatives (e.g. Leader Plus), research and education (university and schools), trade association, regional and provincial support to Local Agenda 21 elaboration</li> </ul>	<ul style="list-style-type: none"> <li>• integration of business strategy with external support in the fields of training, studies, research, managerial and technical assistance (e.g. on social audit with a specific focus on logistics management).</li> </ul>

O4 – Social equity (between individuals) / O5 – Inter-local equity (between territories) / O6 – Inter-temporal equity (between generations)	
<b>LCA – 6<sup>th</sup> main hypothesis</b>	<b>DLA findings</b>
To include quality management issues and sustainable development principles in all training courses and e-learning tools for producers (employers and employees) and consumers (general public, job-seekers and unemployed, families, pupils) in order to increase awareness of sustainable logistics as a means to favour social cohesion and development in depressed areas over the next 15 years.	To improve entrepreneurial knowledge and strategy through the dissemination of the principles of social and environmental quality
<ul style="list-style-type: none"> <li>• new methods of services delivery (e.g. e-government network supporting e-commerce, e-logistics, home-shopping, e-banking, e-administration)</li> <li>• an integrated e-logistics and a safety-orientated inter-modal transport system based on the full utilisation of co-ordination potentials</li> <li>• programmes and projects related to integration between different knowledge and cultures taking into account future impacts on logistics dynamics</li> <li>• programmes and projects for fair interactions also in trade through logistics facilities with different immigrant communities and countries</li> <li>• programmes and projects for positive actions in favour of women insertion in labour market, education and decision-making with a close attention to logistics impacts</li> </ul>	<ul style="list-style-type: none"> <li>• a co-ordinated action plan on SA 8000 certification elaborated by the Mountain Community, the Province, trade associations, trade unions and relevant NGOs.</li> <li>• elaboration of logistics plans in favour of fair trade through the dissemination of good practices among the Casentino stakeholders opening a specifically dedicated web-site in the e-government network with information on strategies, programmes and actions (e.g. the European World Shops, Fair Trade Organisation, ethical banks).</li> <li>• a stable monitoring and evaluation system on strategic (long-term) impacts of processes, products and consumption utilising international sources of information and knowledge (e.g. the Dow Jones Sustainability Indices).</li> </ul>

### 3. SDL / SWOT analysis (SDL Orientation)

#### O1 - Environment

##### Descriptor

Sustainable District Logistics (SDL) orients the corporate strategy towards:

- Reduction and optimisation of natural resource consumption (energy, soil, water, fuel, etc.)
- Reduction, re-utilisation and recycling parts of products, semi-products and wastes
- Pollution prevention and reduction
- Diffusion of new clean technologies, eco-efficient means and modes of transport
- Utilisation of renewable sources of energy

##### SDL / SWOT analysis

Strengths	2	Weaknesses	4
Interesting trends towards environment-friendly systems (also in transportation and warehousing), processes (e.g. recycling) and product (e.g. ecological property) in a limited number of industrial businesses and in examples of organic farming, sometimes supported by environmental quality certifications (i.e. ISO 14000/1 and biological marks)	2	Lack of dissemination of methods and strategies for sustainable business as well as lack of environmental awareness and commitment in some economic sectors (e.g. services)	4
Threats	3	Opportunities	4
Probable isolation of the local good practices within the re-emerging traditional entrepreneurial culture inattentive to environmental issues	3	Probable willingness and capacity of implementing the principle of corporate environmental culture supported by EU, regional and local schemes	4

##### Main hypotheses of alternative options

*To promote the corporate environmental awareness and commitment through measures that favour:*

- *the exchange of good entrepreneurial practices, starting from the attempts made in the Casentino Valley and putting them in contacts with other examples at EU and international levels*
- *the integration of several types of local resources in a visible and streamlined path of financial, technical and management support.*

## O2 – Economy

### Descriptor

Sustainable District Logistics (SDL) orients the corporate strategy towards:

- Reduction of the material, energy and transport flows with the related costs, including those concerning negative impacts on the environmental, work and social conditions
- Investments for improving corporate quality
- Investments in Information and Communication Technology to provide efficient customer services, rationalising logistics and substituting physical transport

### SDL / SWOT analysis

Strengths	3	Weaknesses	4
Modern entrepreneurial culture in industrial companies that have national and international relationships	4	Lack of logistics knowledge in many firms as well as scarce entrepreneurial culture in the farming sector (e.g. management, marketing, accounting)	4
Some interesting logistics cases with a positive effects on rationalising and lowering the related costs	2	Logistics flows based on the prevalent utilisation of road transport, confirming the LCA results on environmental and social impacts and costs (externalities)	5
Threats	4	Opportunities	3
Probable unbalance between sectors and companies due to entrepreneurial individualism	3	Probable development of business services (e.g. administrative, management, financial and technical support)	4
Probable increase in considering logistics as an exclusive business issue without a more integrated territorial strategy (e.g. spatial planning)	4	Probable willingness of leading companies in lowering logistics costs by means of a more balanced transport system that will increase railroad utilisation	3

### Main hypotheses of alternative options

*To favour changes in business strategy on logistics management opening a long-term path aimed at reducing road transport in favour of rail mode with immediate measures that rationalise freight transport organisation through:*

- *consolidation of freight loads in small logistics centres located in the existing railways stations and supported by ICT to connect businesses and transport operators*
- *improvement of railways services (e.g. night-freight-trains) connected with the regional and national railways networks*
- *specific logistics plans co-decided between the large sized enterprises (especially in the industry sector) and the public authorities (e.g. the Mountain Community and the Province) in order improve efficiency and safety of the not-immediately converting road flows into rail freight transport*
- *flexible (e.g. dial-a-ride) but in common (e.g. share-a-ride) services (e.g. van-pool) of supply and distribution, supported by the existing e-government network (“rete civica”) and privately managed (e.g. in association, partnership and more structured consortia)*

- *business investments in e-logistics and e-commerce integrated into the existing e-government network in order to be potentially accessible from and to the Valley households*
- *an annual award in service-voucher for business assistance co-financed by a Valley trust of credit institutes and local authorities closely devoted to the small and medium sized enterprises, with selection criteria formulated according the sectoral typologies and business performances*

## O3 – Socio-culture

### Descriptor

Sustainable District Logistics (SDL) orients the corporate strategy towards:

- Promotion of sustainable styles of production and consumption
- Investments in human capital, innovation, research and studies
- Investments for improving the corporate social quality

### SDL / SWOT analysis

<b>Strengths</b>	<b>2</b>	<b>Weaknesses</b>	<b>4</b>
Some interesting business cases (e.g. industry) that consider human capital as an internal resource	2	Lack of dissemination of methods aimed at taking into account the interests of a wide range of stakeholders in order to determine business strategy (e.g. social audit)	4
<b>Threats</b>	<b>4</b>	<b>Opportunities</b>	<b>4</b>
Probable decreasing in investment and expenses to improve the internal human capital and to ameliorate the business social image due to the foreseen economic crisis	4	Probable increase in social awareness supported by the dissemination of knowledge on total quality management (e.g. client centrality) and social accounting (stakeholders involvement)	4

### Main hypotheses of alternative options

*To facilitate investment in human capital, integrating business strategy with external support (private and public) in the fields of training, research, managerial and technical assistance (e.g. on social audit with a specific focus on logistics management).*

## O4 – Social equity

### Descriptor

Sustainable District Logistics (SDL) orients the corporate strategy towards:

- Improvement of management, work conditions and organisational behaviour (e.g. equal opportunities between women and men, eradication of any types of discrimination, health and safety)

## SDL / SWOT analysis

Strengths	3	Weaknesses	3
Attention to work conditions and human capital due to good industrial relations in relevant companies	3	Lack of support to methods and strategies for social equity due to an increasing reduction of national public spending in social inclusion policies	3
Threats	4	Opportunities	4
Probable reduction in investment on this multi-dimensional aspect due to a reduction in company economic profits and dumping effects on the national and international markets	4	Probable willingness and capacity of implementing the principle of corporate social responsibility and quality certification (e.g. SA 8000) supported by EU, regional and local schemes	4

### Main hypotheses of alternative options

*To promote the principles of SA 8000 through a co-ordinated action plan elaborated by the Mountain Community, the Province, trade associations, trade unions and relevant NGOs.*

## O5 – Interlocal equity

### Descriptor

Sustainable District Logistics (SDL) orients the corporate strategy towards:

- Contribution to a balanced interlocal development through fair and solidarity relationships and alliances between entrepreneurs of different territorial areas

## SDL / SWOT analysis

Strengths	2	Weaknesses	5
Very few cases of fair and solidarity trade that involve other countries with a low development rate	2	Lack of dissemination of methods and strategies to support fair and solidarity trade	5
Threats	4	Opportunities	3
Probable increase in wild competition between companies and developed countries	4	Probable willingness and capacity of implementing strategies based on mutual exchange of knowledge, technologies and market chances	3

### Main hypotheses of alternative options

*To create the knowledge preconditions necessary for the elaboration of logistics plans in favour of fair trade through the dissemination of good practices among the Casentino stakeholders opening a specifically dedicated web-site in the e-government network (“rete civica”) with information on strategies, programmes and actions (e.g. the European World Shops, Fair Trade Organisation, ethical banks).*

## O6 – Inter-temporal equity

### Descriptor

Sustainable District Logistics (SDL) orients the corporate strategy towards:

- Investments in research and studies looking at the future generations

### SDL / SWOT analysis

Strengths	1	Weaknesses	5
Very few examples of investment in this aspect that concerns the long-term entrepreneurial strategy	1	Lack of stable long-term orientation in macro-economic strategy towards the future generations according to the principle of sustainable development (e.g. environmental and social inclusion policies) from the part of the national government	5
Threats	4	Opportunities	5
Probable increase in conflicting interests related to long-term environmental and social issues (e.g. energy crisis, immigration, poverty)	4	Probable increase in willingness and measures to promote sustainable development from the part of regional and local governments, supported by EU strategies	5

### Main hypotheses of alternative options

*To support the business investments with a stable monitoring and evaluation system on strategic (long-term) impacts of processes, products and consumption utilising international sources of information and knowledge (e.g. the Dow Jones Sustainability Indices).*

## O7 – Diversity

### Descriptor

Sustainable District Logistics (SDL) orients the corporate strategy towards:

- Innovation and diversification considering local identities and fabrics (biodiversity, habitat, socio-cultural heritage, economy vocations, small and medium sized enterprises)

### SDL / SWOT analysis

Strengths	3	Weaknesses	4
Interesting business cases aimed at promoting process and product diversification	3	Lack of awareness concerning the integration between economic, socio-cultural and environmental diversification in the industry and services sectors, whilst in agriculture bio-diversity and biological quality are not very well publicised and disseminated	4
Threats	4	Opportunities	5
Probable isolation of the economic diversification from environmental and socio-cultural conservation and diversification with the risk of reducing or jeopardising them	4	Probable increasing support for entrepreneurial strategies based on an integrated approach for diversification promoted by regional and local programmes, plans and schemes	5

## Main hypotheses of alternative options

*To support business innovation and creativity with a stable benchmarking system on local and international good practices accompanied by enquiries, research and scientific studies on biological, social, cultural and economic diversity.*

## O8 – Subsidiarity

### Descriptor

Sustainable District Logistics (SDL) orients the corporate strategy towards:

- Contribution to a balanced local development, reducing the spatial range of material flows
- Contribution to the local communities empowerment, integrating top-down (global dimension) and bottom-up (local dimension) approaches

### SDL / SWOT analysis

Strengths	3	Weaknesses	4
Interesting examples of reduction in material flows mainly in agricultural sector (e.g. organic farming) as well as examples of good business relations between larger industrial companies, local firms and networks	3	Lack of integration between individual logistics plans and a co-ordinated spatial planning	4
Threats	3	Opportunities	3
Probable increase in logistics costs and in dependency from outsider companies	3	Probable willingness and capacity of implementing territorial marketing and logistics with the involvement of relevant public bodies and initiatives	3

## Main hypotheses of alternative options

*To elaborate a plan concerning the promotion of the corporate environmental and social responsibility (CSR) involving all the enterprise associations and sectors (agriculture, industry and services), experts, NGOs, public and private development agencies.*

## O9 – Networking and partnership

### Descriptor

Sustainable District Logistics (SDL) orients the corporate strategy towards:

- Investments in social capital (associations and networks) and alliances between businesses and environmental, socio cultural, ethical organisations
- Networked organisations (e.g. consortia between businesses, co-operation between private, public and social sectors)



## SDL / SWOT analysis

<b>Strengths</b>	<b>3</b>	<b>Weaknesses</b>	<b>5</b>
Several examples of involvement in networks of economic interests	3	Lack of a diffused involvement in networks that promote social and environmental interests	5
<b>Threats</b>	<b>4</b>	<b>Opportunities</b>	<b>3</b>
Probable isolation of the local good practices within the re-emerging traditional corporate culture inattentive to the environmental, socio-cultural and ethical issues	4	Probable willingness and capacity of developing relationships and memberships in existing business networks orientated towards sustainable development	3

### Main hypotheses of alternative options

*To promote territorial marketing (e.g. local brands) and integrated logistics networks aimed at facilitating the creation of clusters and networks of supply, production and consumption with the collaboration of environmental departments and agencies as well as with the integration of this issue into the elaboration of the Valley Local Agenda 21, supported by the participation on CSR and sustainable business networks.*

## O10 – Participation

### Descriptor

Sustainable District Logistics (SDL) orients the corporate strategy towards:

- Improvement of the relationships between the firm and the stakeholders constellation, taking into account new points of view, cultures, interests and behaviours
- Information, animation and facilitation

## SDL / SWOT analysis

<b>Strengths</b>	<b>3</b>	<b>Weaknesses</b>	<b>4</b>
Attention to improve quality, business promotion and marketing strategies mainly in the industry sector	3	Lack of dissemination of methods and strategies for the involvement of a wide range of stakeholders taking into account also those “without voice” (e.g. the environment and the future generations)	4
<b>Threats</b>	<b>4</b>	<b>Opportunities</b>	<b>5</b>
Probable reduction in the attention on stakeholder participation due to the re-emerging of a less responsible corporate culture nourished by controversial schemes and behaviours at a national level (e.g. government strategies)	4	Probable willingness and capacity of opening and promoting new awareness on stakeholder participation nourished by EU, regional and local schemes	5

### Main hypotheses of alternative options

*To support local businesses (especially small and medium sized enterprises and farms) in the elaboration of environmental and social marketing creating a few numbers of “quality circles” per sectors and activity with the involvement of stakeholder samples (e.g. households, customers, suppliers, consumers’ associations, environmental organisations).*

## 4. Logistics flows

The DLA questionnaire (see Annex) gathered information regarding the flows of supply logistics (Tab.1), distribution logistics (Tab.2), reverse logistics (Tab.3) and refuse/waste logistics (Tab.4).

In each table information regarded: origin, destination, average distance, volume, costs, transport mode, transshipment nodes and load type.

Data concerning each company were inserted in separated spreadsheets to calculate tonnes and Tkm related to supply, distribution, reverse and refuse/waste logistics, as well as the total flow. Specific formulas were used to calculate:

1. total Tkm occurring completely within the concerned local area, e.g. Tkm internally borne and internally provided in the supply chain, Tkm internally borne and internally delivered in the distribution chain; these are strictly endogenous flows which occur between origins and destinations located within the concerned local area;
2. total Tkm of flows beginning or ending outside the concerned local area, e.g. Tkm externally borne and internally utilised in the supply chain, Tkm internally borne and externally delivered in the distribution chain; these are exogenous flows and take into account the overall distances between origins and destinations;
3. the share of exogenous Tkm (from point 2) that transits within the local area e.g. tonnes of an externally delivered product that transit within the local area for a certain distance (km); these flows take into account the distances from and to the boundaries of the concerned local area by exogenous flows. Information was obtained to identify the main routes utilised to enter or to leave the concerned local area.

As a conclusion,

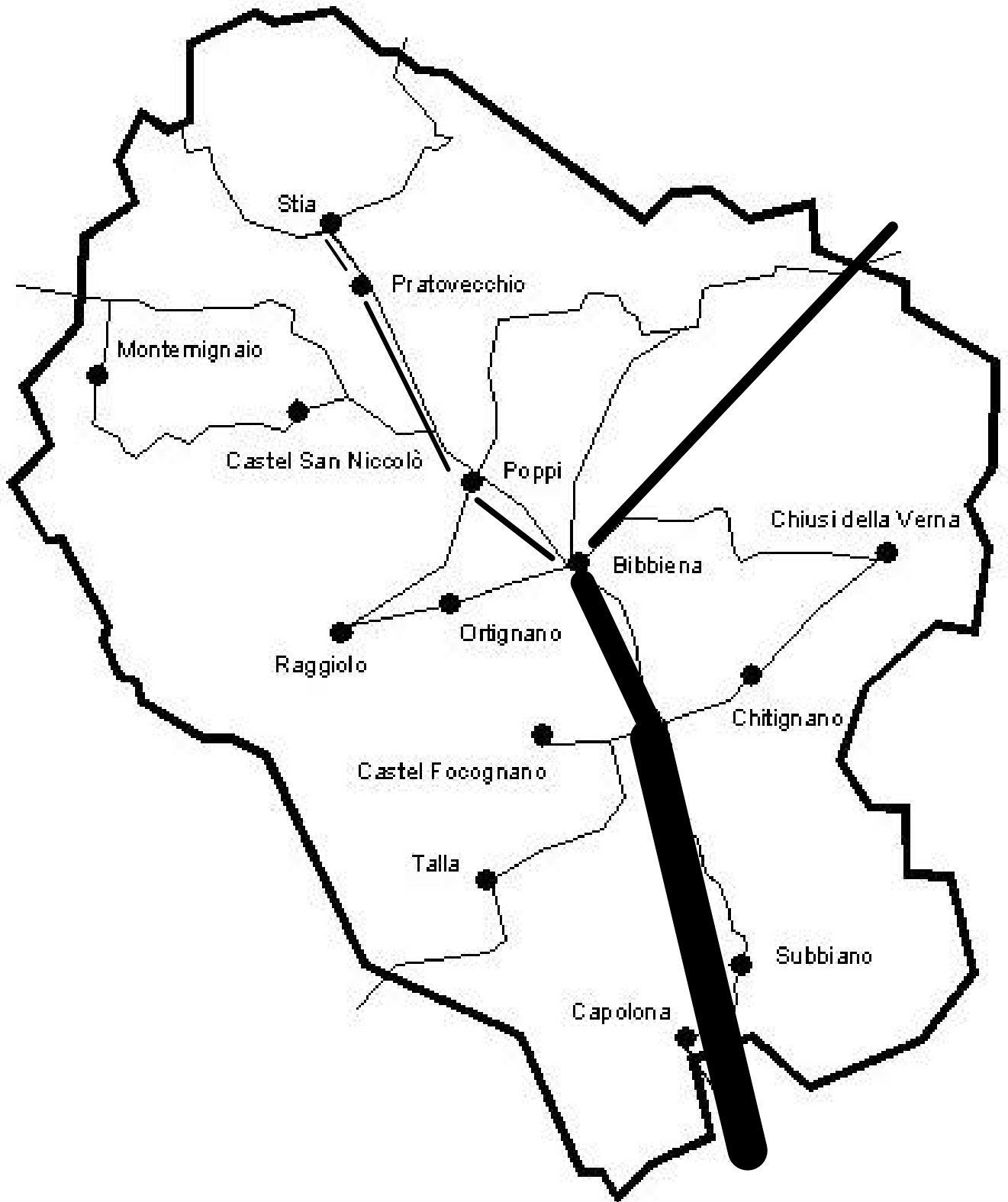
- the total Tkm occurred within the concerned local area were obtained by summing the results of the above-mentioned points 1 + 3;
- the total Tkm occurred outside the concerned local area were obtained by difference between the results of the above-mentioned points 2 - 3.

The calculations allowed researchers to identify additional questions that can improve the overall information value of the questionnaire (see Annex): that being to add a specific question on the identification of the main transit entrance points entering and leaving the concerned local area.

The following maps show the freight flows (supply, distribution and total) along the main transport networks of the Casentino Valley.

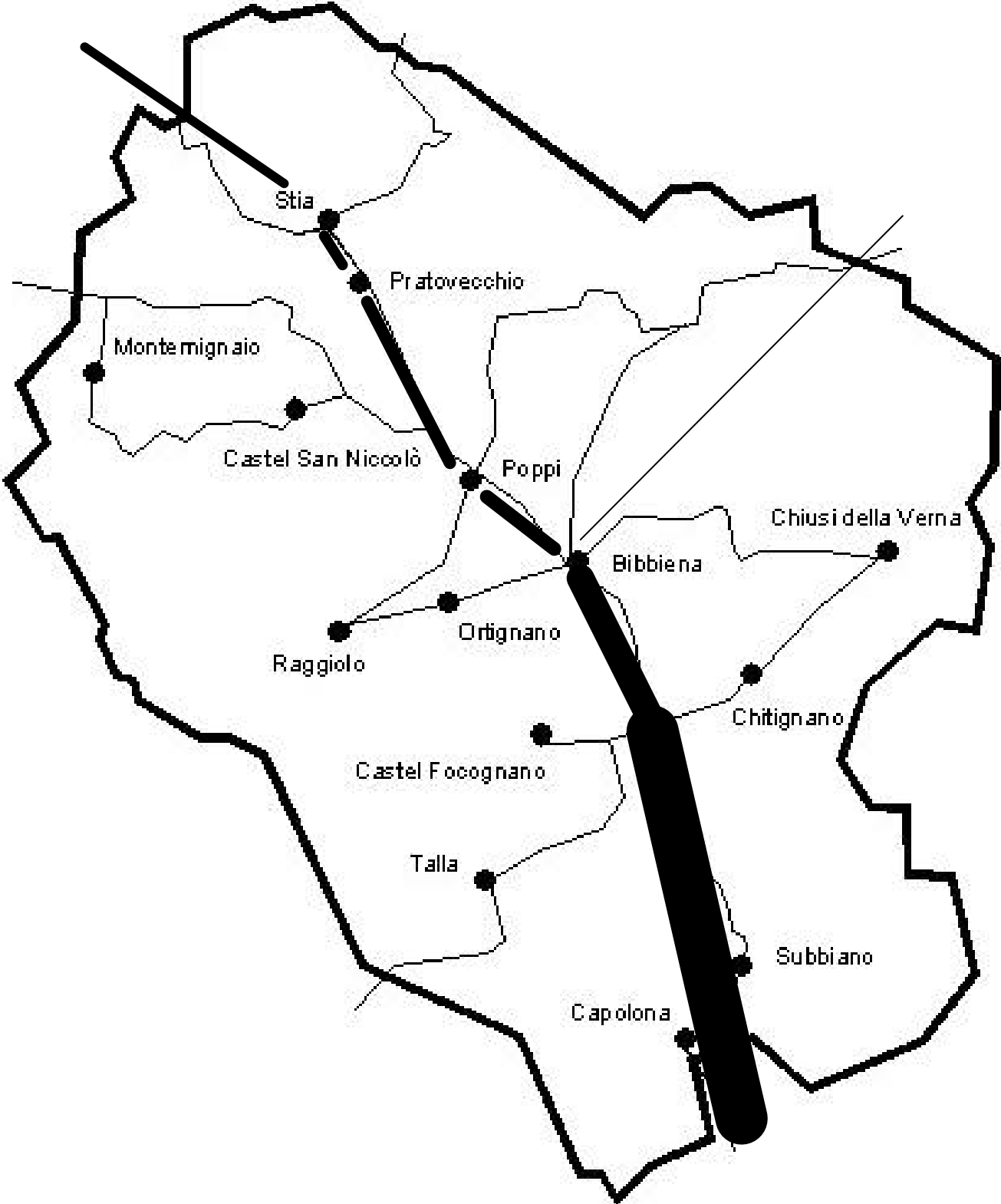
# Supply logistics flow

Total road 35.525.168 Tkm





# Distribution logistics flow

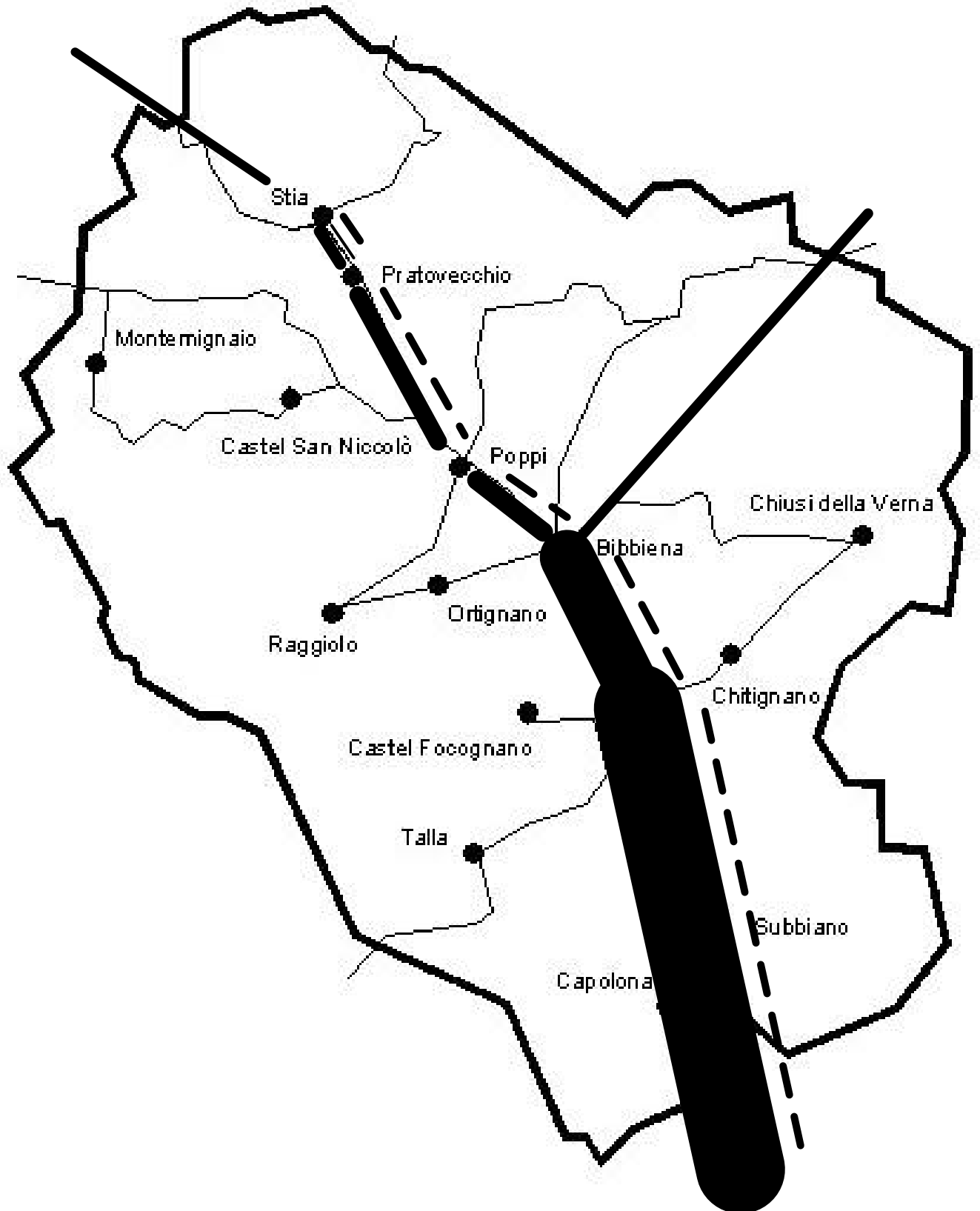
Total road 38.771.321 Tkm



# Total freight flow

## Distribution, supply, reverse and refusal and waste

Total road 75.042.472 Tkm   
Total rail 4.090.640 Tkm 



## Freight flow

<i>Sample results</i>	<i>Tonnes</i>	<i>Tkm occurred within the Casentino Valley</i>	
Supply logistics	2.638.848 60,06%	35.525.168	47,34%
Distribution logistics	1.723.162 39,22%	38.771.321	51,67%
Reverse logistics	2.177 0,05%	50.699	0,07%
Logistics of refusals and wastes	29.441 0,67%	695.283	0,93%
<i>Total</i>	4.393.628 100%	75.042.472	100%
<i>Rail stations' flow(1)</i>	106.694	4.090.640	
<i>Overall total</i>	4.500.322	79.133.112	

(1) The provided data do not allow for disaggregating them in each logistics typology

Taking into account the characteristics of each main sector (agriculture, industry and services) in terms of employment dimensions, the results of the sample were utilised to determine the overall Valley entrepreneurial fabric.

<i>From the sample to the Valley economic fabric and territorial dimension</i>	
<i>Data (Tkm) resulted from the inference</i>	164.081.491
<i>Data (Tkm) estimated (Local Context Analysis)</i>	164.177.600
<i>Sample data over the Valley universe</i>	48%

From the sample the most distant places emerged, demonstrating that the economic structure of the Valley is open to international market. This result is due more to large – medium enterprises (primarily industrial) than to the other sectors and sizes.

<i>The most distant places reached in</i>	
<i>supply logistics</i>	<i>distribution logistics</i>
Chile	America
Japan	Argentina
China – Far East	Thailand
USA North/South	Hong Gong
	Singapore

Excluding reverse logistics and that of refuse and waste because of the very low amount (1% of the total Tkm) declared by the respondent companies, freight flows were distinguished between those occurred inside and outside the Casentino Valley with the following results.

<b>Tkm inside and outside Casentino area</b>		
<b>SUPPLY LOGISTICS</b>	<i>Tkm</i>	<b>%</b>
Tkm occurred <i>within</i> the Casentino	35.525.168	8,62%
Tkm occurred <i>outside</i> the Casentino	376.400.513	91,38%
<b>TOTAL OF SUPPLY</b>	411.925.681	100%

<b>DISTRIBUTION LOGISTICS</b>	<i>Tkm</i>	<b>%</b>
Tkm occurred <i>within</i> the Casentino	38.771.321	9,84%
Tkm occurred <i>outside</i> the Casentino	355.256.233	90,16%
<b>TOTAL OF DISTRIBUTION</b>	394.027.554	100%

<b>Total supply and distribution logistics Tkm</b>	805.953.235	100%
Tkm occurred <i>within</i> the Casentino	74.296.489	9%
Tkm occurred <i>outside</i> the Casentino	731.656.746	91%

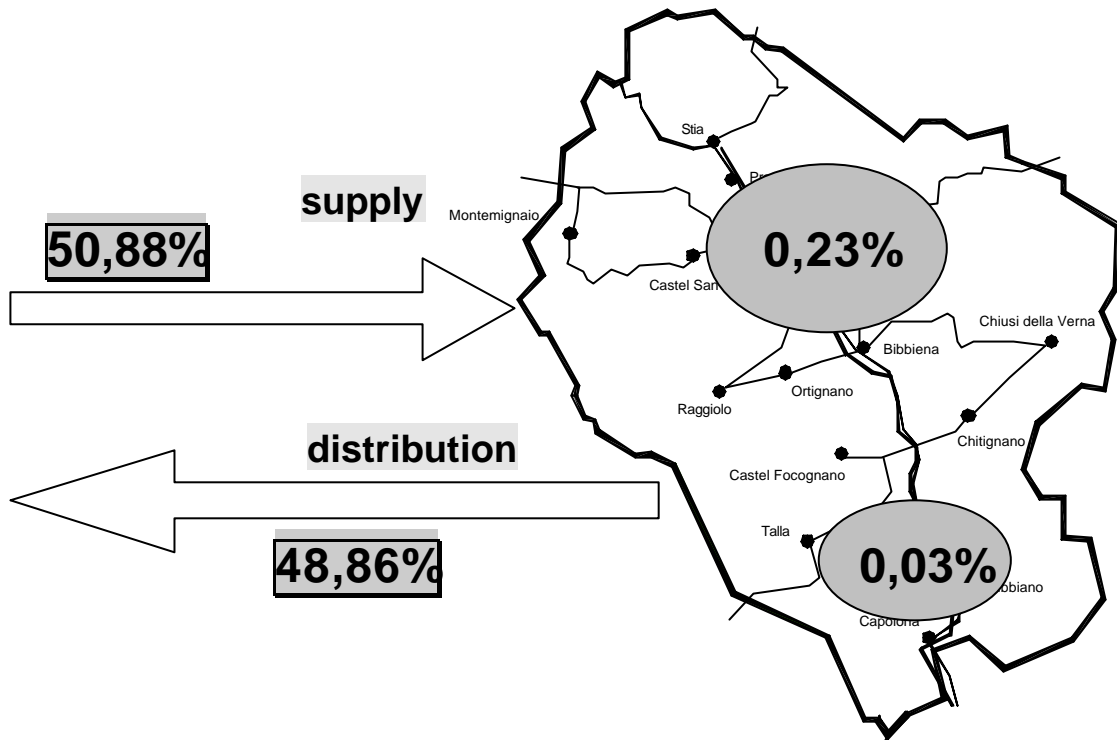
More specifically, flows were identified according to their endogenous or exogenous nature with respect to the Casentino territory.

<b>SUPPLY LOGISTICS</b>	<b>Tkm</b>	<b>%</b>
<i>Internally borne and Internally provided freight</i>	1.864.995	0,23%
<i>Externally borne and Internally provided freight</i>	410.060.686	50,88%
<b>DISTRIBUTION LOGISTICS</b>		
	<b>Tkm</b>	<b>%</b>
<i>Internally borne and Internally delivered freight</i>	239.534	0,03%
<i>Internally borne and Externally delivered freight</i>	393.788.020	48,86%
<b>TOTAL OF SUPPLY AND DISTRIBUTION</b>	805.953.235	100%

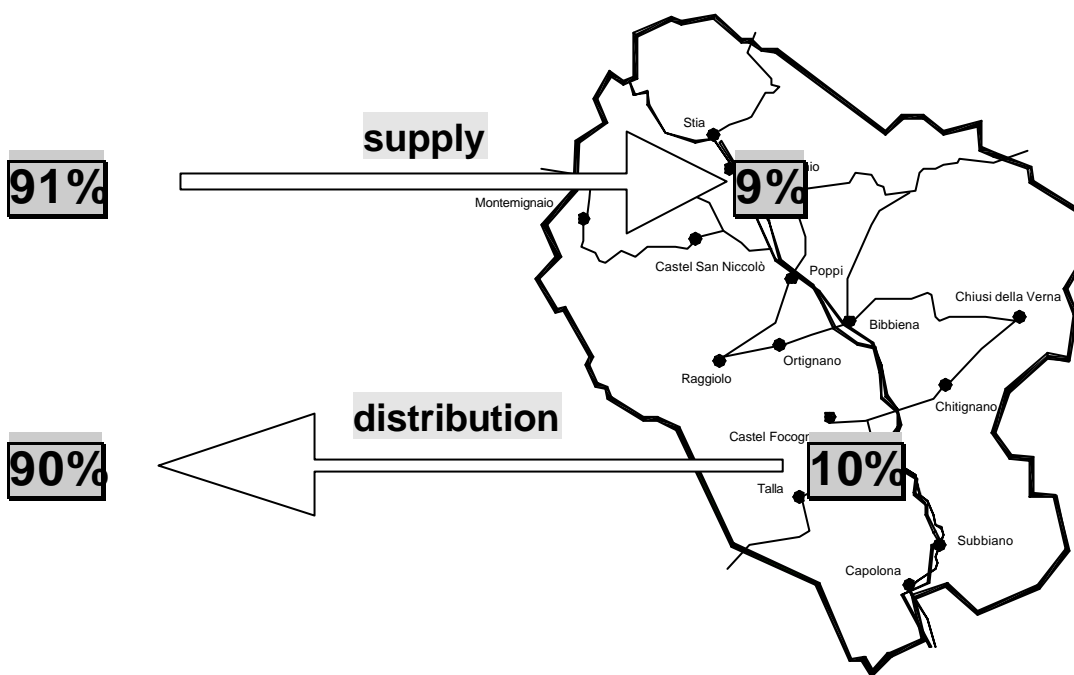
The following maps present the transport flow in Tkm concerning the Casentino Valley.

# Transport flow in Tkm

**1 – Average share of freight transport internally borne, externally borne, and transit traffic:** transit 0%; supply internally borne and internally provided 0,23%; supply externally borne and internally provided 50,88%; distribution internally borne and internally delivered 0,03%; distribution internally borne and externally delivered 48,86%



**2 - Tkm inside and outside Casentino area:** nearly 9% of the total Tkm of the supply chain occurs within the Casentino and 91% occurs outside the Valley. For distribution, the Tkm percentages are respectively 10% and 90%





## Load typologies, transport mode and matter typology

The main load typologies were semi-bulk (82% in supply and 71% in distribution logistics), unitised (13% in supply and 15% in distribution) and bulk (5% in supply and 14% in distribution).

While the main transport mode was road in the inner connection of the Valley, sea-road combined transport prevailed especially in the supply traffic for international relationships, followed by the road-rail combined transport especially in distribution logistics.

The total amount of tonnes concerning the main aggregated typologies of matter transported gave the following results expressed in percentage:

<b>MATTER TRANSPORTED</b>	<b>SUPPLY</b>	<b>DISTRIBUTION</b>
Livestock and agricultural products	0,61%	0,53%
Food and forage products	0,48%	0,18%
Petroleum products	3,58%	0,00%
Mining products	0,98%	0,07%
Raw materials, manufacture products and building materials	88,19%	85,19%
Chemicals	4,03%	4,64%
Industrial machinery, vehicles and different merchandise	1,21%	7,90%
Waste – Urban, industrial agricultural	0,91%	1,47%
Waste – Special and dangerous	0,00%	0,01%
<b>TOTAL</b>	100% (2.638.848 tonnes)	100% (1.723.162 tonnes)

## Transport costs

From the answers received, transport costs were the following ones:

<i>Range of Transport Cost to each mains Sectors (Euro per Tkm)</i>		
	<i>Supply</i>	<i>Distribution</i>
Agriculture	0,14 - 11,89	-
Industry	0,01 - 6,00	0,03 - 1,16
Service	0,22 - 2,60	0,09 - 0,28

## Distinctive main characteristics per aggregated sectors

Different logistics profiles emerged between the three main sectors confirming a more reduced range of material flow in agriculture than in the sectors of services and industry:

Sector	Percentage of Tkm occurred inside and outside the Casentino Valley				Average distance in km		
		Total	Supply	Distribution	Total	Supply	Distribution
Agriculture	<i>inside</i>	20%	13%	32%	10 km	12 km	17 km
	<i>outside</i>	80%	87%	68%	48 km	87 km	52 km
Industry	<i>inside</i>	9%	8%	10%	17 km	13 km	23 km
	<i>outside</i>	91%	92%	90%	187 km	162 km	226 km
Services	<i>inside</i>	10%	16%	7%	17 km	16 km	17 km
	<i>outside</i>	90%	84%	93%	171 km	97 km	243 km

## 5. Business performances

### 5.1. SDL indices

The elaboration of the sensitive data collected through the questionnaires was made with the aim of identifying the current profiles of the interviewed firms.

The profiles regard the business performances and are structured according the SQM / SDL 10 orientators.

To this end, the questionnaire (see Annex) asked for more detailed information than those usually provided by the legally required balance sheet: Statements of Assets and Liabilities, Profit and Loss Accounts.

Data from the Statement of Assets and Liabilities gave information on total investments (Annex: Tab.5.A), tangible fixed assets (Annex: Tab.5.B), intangible fixed assets (Annex: Tab.5.C) and financial fixed assets (Annex: Tab.5.D), as well as on inventory – stock value (Annex: Tab.5.E).

Data from the Profit and Loss Account gave information on turnover (Annex: Tab.6.A), purchases, production, commercial, administrative and leasing costs (Annex: Tab.6.B), amortizations and reserves (Annex: Tab.6.C) and labour cost (Annex: Tab.6.D).

The questionnaire asked also for specific information on goods and services acquired from firms with a social and environmental quality profile, as well as on goods and services acquired from locally-based firms (Annex: Tab.7).

Data elaboration was made classifying the specific voices of the balance sheet according to their relevance and appropriateness in relation with the SDL orientators:

- in the case of turnover (Profit and Loss Account) the orientators concerning the environmental, socio-cultural and economic properties assigned to the value created
- in the case of all business costs (Profit and Loss Account) and all the 10 orientators
- in the case of the Statement of Assets and Liabilities, 6 orientators with the exclusion of Social Equity, Interlocal Equity, Intertemporal Equity and Diversity.

The results of the data elaboration were expressed in percentage values (SDL indices) in order to make it possible an easy comparison between the different profiles.

The following tables show both the methodology of classification and the aggregated and anonymous results concerning the business performances.

## Methodology of classification

Sustainable District Logistics (SDL) orients the corporate strategy towards:	Voice of the Profit & Loss Account related to the SDL orientator	Voice of the Statement of Economic Assets & Liabilities related to the SDL orientator
<p><b><i>OI Environment</i></b></p> <ul style="list-style-type: none"> <li>• Reduction and optimisation of natural resource consumption (energy, soil, water, fuel, etc.)</li> <li>• Reduction, re-utilisation and recycling parts of products, semi-products and wastes</li> <li>• Pollution prevention and reduction</li> <li>• Diffusion of new clean technologies, eco-efficient means and modes of transport</li> <li>• Utilisation of renewable sources of energy</li> </ul>	<p><i>Turnover:</i></p> <ul style="list-style-type: none"> <li>- estimate of the ecological property attributable to the revenues from products and performances</li> </ul> <p><i>Production costs:</i></p> <ul style="list-style-type: none"> <li>- purchases of raw materials, subsidiary materials and goods that are recyclable, recycled, substitutive of dangerous materials</li> <li>- goods and services acquired from environmentally responsible firms (e.g. ISO 14001, EMASII)</li> <li>- production expenses related to the utilisation of renewable and recycled resources (energy, water, etc.)</li> <li>- commercial expenses and charges concerning logistics and transport systems with environment saving</li> <li>- commercial expenses and charges concerning re-usable and recycled packaging</li> <li>- leasing expenses for systems of environmental protection</li> </ul>	<p><i>Tangible fixed assets:</i></p> <ul style="list-style-type: none"> <li>- systems for energy saving and efficiency</li> <li>- systems for water saving, efficiency and recycle</li> <li>- systems for minimising greenhouse emissions</li> <li>- systems for recovering and recycling of refusals, discards, used products, etc.</li> <li>- systems for lowering ground pollution</li> <li>- bio-buildings, of which warehouses</li> <li>- warehouse machineries with low environmental impact (energy, noise, pollution, etc.)</li> <li>- warehouse equipments with low environmental impact (energy, noise, pollution, etc.)</li> <li>- warehouse vehicles with low environmental impact (energy, noise, pollution, etc.)</li> <li>- systems to reduce packaging</li> <li>- means of transport with low environmental impact (energy, noise, pollution, etc.)</li> </ul> <p><i>Intangible fixed assets:</i></p> <ul style="list-style-type: none"> <li>- environmental quality certifications and marks</li> </ul>

Sustainable District Logistics (SDL) orients the corporate strategy towards:	Voice of the Profit & Loss Account related to the SDL orientator	Voice of the Statement of Economic Assets & Liabilities related to the SDL orientator
<p><b><i>O2 Economy</i></b></p> <ul style="list-style-type: none"> <li>• Reduction of the material, energy and transport flows with the related costs, including those concerning negative impacts on the environmental, work and social conditions</li> <li>• Investments for improving corporate quality</li> <li>• Investments in Information and Communication Technology to provide efficient customer services, rationalising logistics and substituting physical transport</li> </ul>	<p><i>Turnover:</i></p> <ul style="list-style-type: none"> <li>- total revenues from products and performances, of which only with estimated economic property</li> </ul> <p><i>Production costs:</i></p> <ul style="list-style-type: none"> <li>- total purchases of raw materials, subsidiary materials and goods</li> <li>- total production expenses</li> <li>- total commercial expenses and charges, of which for warehouse service, transport service, packaging</li> <li>- total administrative and overheads expenses, of which for customer services (and electronic commerce), risk assurance for warehouse and transport, duties and taxes for the environment, waste, water, etc., penalties for lacked respect of social and environmental norms)</li> <li>- total leasing expenses</li> <li>- total labour costs, of which for transport, warehousing and customer services</li> <li>- total amortisation of investments in tangible assets (of which for warehouses and transport) and reserves (of which for transport and warehouse risks)</li> </ul>	<p><i>Total tangible fixed assets, of which:</i></p> <ul style="list-style-type: none"> <li>- lands assigned to warehouse areas</li> <li>- warehouses</li> <li>- warehouse machineries</li> <li>- warehouse equipments</li> <li>- warehouse vehicles</li> <li>- means of transport</li> <li>- technologies for electronic commerce</li> </ul> <p><i>Total intangible fixed assets, of which:</i></p> <ul style="list-style-type: none"> <li>- economic quality certifications and marks</li> </ul> <p><i>Total financial fixed assets</i></p> <p><i>Inventory (stock value):</i></p> <ul style="list-style-type: none"> <li>- final surplus of in working, semi-finished and finished products</li> <li>- final surplus of raw materials, subsidiary materials, consumables and goods</li> </ul>

Sustainable District Logistics (SDL) orients the corporate strategy towards:	Voice of the Profit & Loss Account related to the SDL orientator	Voice of the Statement of Economic Assets & Liabilities related to the SDL orientator
<p><b>03 Socio-Culture</b></p> <ul style="list-style-type: none"> <li>• Promotion of sustainable styles of production and consumption</li> <li>• Investments in human capital, innovation, research and studies</li> <li>• Investments for improving the corporate social quality</li> </ul>	<p><i>Turnover:</i> estimate of the socio-cultural property attributable to the revenues from products and performances</p> <p><i>Production costs:</i> - production expenses for research, tests, training, books, newspapers and magazines, socio-cultural initiatives, etc.</p>	<p><i>Intangible fixed assets:</i> - social quality certifications and marks</p>
<p><b>04 Social equity</b></p> <ul style="list-style-type: none"> <li>• Improvement of management, work conditions and organisational behaviour (e.g. equal opportunities between women and men, eradication of any types of discrimination, health and safety)</li> </ul>	<p><i>Production costs:</i> - goods and services acquired from firms socially responsible (e.g. SA8000) - production expenses for improving work organisation, behaviour, motivation, social relations</p>	
<p><b>05 Interlocal equity</b></p> <ul style="list-style-type: none"> <li>• Contribution to a balanced interlocal development through fair and solidarity relationships and alliances between entrepreneurs of different territorial areas</li> </ul>	<p><i>Production costs:</i> - commercial expenses and charges for fair trade</p>	
<p><b>06 Intertemporal equity</b></p> <ul style="list-style-type: none"> <li>• Investments in research and studies looking at the future generations</li> </ul>	<p><i>Production costs:</i> - production expenses for studies concerning appraisal and assessment of environmental, economic and socio-cultural impacts</p>	
<p><b>07 Diversity</b></p> <ul style="list-style-type: none"> <li>• Innovation and diversification considering local identities and fabrics (biodiversity, habitat, socio-cultural heritage, economy vocations, small and medium sized enterprises)</li> </ul>	<p><i>Production costs:</i> - production expenses for studies concerning economic, environmental, socio-cultural diversification and innovation</p>	

Sustainable District Logistics (SDL) orients the corporate strategy towards:	Voice of the Profit & Loss Account related to the SDL orientator	Voice of the Statement of Economic Assets & Liabilities related to the SDL orientator
<p><b><i>O8 Subsidiarity</i></b></p> <ul style="list-style-type: none"> <li>• Contribution to a balanced local development, reducing the spatial range of material flows</li> <li>• Contribution to the local communities empowerment, integrating top-down (global dimension) and bottom-up (local dimension) approaches</li> </ul>	<p><i>Production costs:</i></p> <ul style="list-style-type: none"> <li>- goods and services acquired from local firms</li> </ul>	<p><i>Financial fixed assets:</i></p> <ul style="list-style-type: none"> <li>- participations in local production and consumption networks (e.g. purchase groups)</li> <li>- participations in organisations (networks) for responsible consumption</li> </ul>
<p><b><i>O9 Networking / Partnership</i></b></p> <ul style="list-style-type: none"> <li>• Investments in social capital (associations and networks) and alliances between businesses and environmental, socio cultural, ethical organisations</li> <li>• Networked organisations (e.g. consortia between businesses, co-operation between private, public and social sectors)</li> </ul>	<p><i>Production costs:</i></p> <ul style="list-style-type: none"> <li>- administrative and overhead expenses concerning subsidies for associations of economic, socio-cultural, environmental interests</li> <li>- amortizations of investments in financial assets related to participations in firms, association, funds, networks</li> </ul>	<p><i>Financial fixed assets:</i></p> <ul style="list-style-type: none"> <li>- participations in firms and associations of an economic nature</li> <li>- participations - donations in firms and associations involved in environmental and socio cultural issues</li> <li>- participations in ethical and green funds</li> </ul>
<p><b><i>O10 Participation</i></b></p> <ul style="list-style-type: none"> <li>• Improvement of the relationships between the firm and the stakeholders constellation, taking into account new points of view, cultures, interests and behaviours</li> <li>• Information, animation and facilitation</li> </ul>	<p><i>Production costs:</i></p> <ul style="list-style-type: none"> <li>- commercial expenses and charges for operating social and environmental marketing</li> <li>- amortizations of investments in intangible fixed assets related to quality improvement and business promotion</li> </ul>	<p><i>Intangible fixed assets:</i></p> <ul style="list-style-type: none"> <li>- strategic environmental marketing</li> <li>- strategic social marketing</li> <li>- strategic economic marketing</li> </ul>

## Profile results

The sensitive data are presented in an aggregated manner following benchmarking criteria that identify “ideal-types” combining information received from individual firms.

The procedure was as follows:

- a profile was determined for each respondent company, considering all the available answers and weighting the data in terms of percentage according to the SDL orientators utilised
- the profiles were separated in the three main sectors (industry, agriculture and services)
- for each sector, subcategories were created according to the typology of products, processes, markets (near or distant) and employment dimensions
- a selection was made to identify the best and the lowest results for each of the SDL orientators utilised
- the above results were handled again (weighted in terms of percentage) in order to draw two significant “ideal-types” for each main sector (industry, agriculture and services)
- the anonymous sectoral “ideal-types” were presented in an aggregated manner (SDL indices) by the following tables with the aims of demonstrating the tendency from a low to a better corporate performance.

## Industry

<i>PLEASE = Profit and Loss Economic Account with Social and Environmental dimensions</i>			
<b>Production costs</b>		<b>Turnover</b>	
	Percentage range		Percentage range
O1. Environment	From 2,61% to 53%	O1. Environment	From 5% to 40%
O2. Economy	From 97,06% to 30,08%	O2. Economy	From 95% to 55%
O3. Socio-culture	From 0,02% to 1,30%	O3. Socio-culture	From 0% to 5%
O4. Social equity	From 0,07% to 0,46%	<b>Total</b>	<b>100,00</b>
O5. Interlocal equity	From 0% to 1,22%		
O6. Intertemporal equity	From 0% to 0,01%		
O7. Diversity	From 0% to 2,82%		
O8. Subsidiarity	From 0% to 9,55%		
O9. Networking and partnership	From 0,24% to 0,32%		
O10. Participation	From 0% to 1,24%		
<b>Total</b>	<b>100,00</b>		

Goods and services acquired from:	Percentage range on production costs	
- socially responsible firms (es. SA8000)	From 0% to 1,3%	O3. Socio-culture
- environmentally responsible firms (es. ISO 14001, EMASII)	From 0% to 43%	O1. Environment
- local firms	From 0% to 9,55%	O8. Subsidiarity



<i>SEALES = Statement of Economic Assets and Liabilities with Environmental and Social dimensions</i>	
<b>Investments</b>	Percentage range
O1. Environment	From 8,6% to 11,29%
O2. Economy	From 85,74% to 79,51%
O3. Socio-culture	From 0% to 0,15%
O8. Subsidiarity	From 0% to 0,14%
O9. Networking and partnership	From 0% to 2,7%
O10. Participation	From 5,66% to 6,21%
<b>Total</b>	<b>100,00</b>

## Agriculture

<i>PLEASE = Profit and Loss Economic Account with Social and Environmental dimensions</i>					
<b>Production costs</b>		Percentage range	<b>Turnover</b>		Percentage range
O1. Environment	From 10,32% to 62,67%		O1. Environment	From 70% to 100%	
O2. Economy	From 83,91% to 19,91%		O2. Economy	From 30% to 0%	
O3. Socio-culture	From 0% to 0,14%		O3. Socio-culture	0%	
O4. Social equity	From 0% to 0,11%		<b>Total</b>	<b>100,00</b>	
O5. Interlocal equity	0%				
O6. Intertemporal equity	0%				
O7. Diversity	0%				
O8. Subsidiarity	From 5,77% to 16,92%				
O9. Networking and partnership	0%				
O10. Participation	From 0% to 0,25%				
<b>Total</b>	<b>100,00</b>				

Goods and services acquired from:	Percentage range on production costs	
- socially responsible firms (es. SA8000)	0% %	O3. Socio-culture
- environmentally responsible firms (es. ISO 14001, EMASII)	From 9% to 62,67%	O1. Environment
- local firms	From 6% to 16,92%	O8. Subsidiarity

<i>SEALES = Statement of Economic Assets and Liabilities with Environmental and Social dimensions</i>	
<b>Investments</b>	Percentage range
O1. Environment	From 0% to 24,93%
O2. Economy	From 100% to 74,76%
O3. Socio-culture	0%
O8. Subsidiarity	0%
O9. Networking and partnership	From 0% to 0,31%
O10. Participation	0%
<b>Total</b>	<b>100,00</b>

## Services

<i>PLEASE = Profit and Loss Economic Account with Social and Environmental dimensions</i>			
<b>Production costs</b>		<b>Turnover</b>	
	Percentage range		Percentage range
O1. Environment	0%	O1. Environment	0%
O2. Economy	From 100% to 98,75%	O2. Economy	100%
O3. Socio-culture	0%	O3. Socio-culture	0%
O4. Social equity	0%	<b>Total</b>	<b>100,00</b>
O5. Interlocal equity	0%		
O6. Intertemporal equity	0%		
O7. Diversity	0%		
O8. Subsidiarity	0%		
O9. Networking and partnership	From 0% to 0,58%		
O10. Participation	From 0% to 0,67%		
<b>Total</b>	<b>100,00</b>		

Goods and services acquired from:	Percentage range on production costs	
- socially responsible firms (es. SA8000)	0%	O3. Socio-culture
- environmentally responsible firms (es. ISO 14001, EMASII)	0%	O1. Environment
- local firms	0%	O8. Subsidiarity

<i>SEALES = Statement of Economic Assets and Liabilities with Environmental and Social dimensions</i>	
<b>Investments</b>	Percentage range
O1. Environment	From 0% to 25,8%
O2. Economy	From 99,98% to 65,96%
O3. Socio-culture	0
O8. Subsidiarity	0%
O9. Networking and partnership	From 0,02% to 8,24%
O10. Participation	0%
<b>Total</b>	<b>100,00</b>

## Trends during the last five years

Data extracted from the Statement of Assets and Liabilities and from the Profit and Loss Account were accompanied by a short assessment of trends concerning the economic values recorded in the last five years: increased, equal or decreased.

An inclusive business profile emerged from the received answers (66% of the final sample) that show the following prevalent trends.

A scale from 0 to 3 dots underlines the trend intensity in terms of number of businesses that approached the profile.

Trend direction	Trend intensity	
Increased	Marked	● ● ●
Equal	Average	● ●
Decreased	Feeble	●

### STATEMENT OF ASSETS AND LIABILITIES

<b>A. TOTAL INVESTMENTS</b>	Increased	● ● ●
<b>A1. TOTAL TANGIBLE FIXED ASSETS, of which for:</b>	Increased	● ● ●
Lands assigned to warehouse areas	Increased	● ●
Warehouses	Increased	● ●
- of which bio-buildings	None	
Machineries for warehouse	Increased	●
- of which with low environmental impact (energy, noise, pollution, etc.)	Increased	●
Equipments for warehouses	Increased	● ●
- of which with low environmental impact (energy, noise, pollution, etc.)	Increased	●
Vehicles for warehouses	Increased	● ●
- of which with low environmental impact (energy, noise, pollution, etc.)	Increased	●
Systems to reduce packaging	Increased	●
Means of transport	Increased	● ●
- of which with low environmental impact (energy, noise, pollution, etc.)	None	
Systems for energy saving and efficiency	Increased	●
Systems for water saving, efficiency and recycle	Increased	●
Systems for minimising greenhouse emissions	Increased	●
Systems for recovering and recycling of refusals, discards, used products	Increased	●
Bio-buildings	Increased	●
Systems for lowering ground pollution	Increased	●
Technologies for electronic commerce	Increased	●

<b>A2. TOTAL INTANGIBLE FIXED ASSETS, of which for:</b>	Increased	● ●
Environmental Quality certifications and marks (specify)	Increased	●
Social Quality certifications and marks (specify)	None	
Economic Quality certifications and marks (specify)	Increased	●
Strategic environmental marketing	None	
Strategic social marketing	None	
Strategic economic marketing	Increased	●

<b>A3. TOTAL FINANCIAL FIXED ASSETS, of which for:</b>	Equal	● ●
Participations in firms and associations of an economic nature	Equal	● ●
Participations – donations in firms and associations involved in environmental and socio-cultural issues	Increased	●
Participations in ethical and green funds	Increased	●
Participations in local production and consumption networks (purchase groups, etc.)	Increased	●
Participations in organisations (networks) for responsible consumption	None	

<b>INVENTORY: STOCK VALUE</b>	Increased	● ●
Final surplus of in working, semi-finished and finished products	Decreased	●
Final surplus of raw materials, subsidiary materials, consumables and goods	Increased	● ●

<b>PROFIT AND LOSS ACCOUNT</b>
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<b>A. TURNOVER:</b>		
Total revenues from products and performances	Increased	● ● ●

<b>B. PRODUCTION COSTS</b>	Increased	● ● ●
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<b>Total of the purchases of raw materials, subsidiary materials, consumables and goods</b>	Increased	● ●
- of which recyclable, recycled, substitutive of dangerous materials	Increased	●

<b>Total of production expenses, of which for:</b>	Increased	● ●
research, tests, training, books, newspapers and magazines, socio-cultural initiatives, etc.	Increased	●
studies for appraisal and assessment of environmental, economic and socio-cultural impacts	None	
studies for economic, environmental and socio-cultural diversification and innovation	Increased	●
improvement of work organisation, behaviour, motivation, participation and social relations	Increased	●
utilisation of renewable and recycled resources (energy, water, etc.)	Increased	●

<b>Total of commercial expenses and charges, of which for:</b>	Increased	● ●
warehouse services	Increased	●
transport services	Increased	●
logistics and transport systems with environment saving	None	
packaging	Increased	●
- of which re-usable and recycled	Increased	●
operating social marketing	None	
operating environmental marketing	None	
fair trade	Increased	●

<b>Total of administrative and overhead expenses, of which for:</b>	Increased	● ●
customer services	Increased	●
- of which electronic commerce	Increased	●
risk assurance for warehouse and transport	Increased	●
duties and taxes for the environment, waste, water, etc.	Increased	●
penalties for lacked respect of social and environmental norms	None	
subsidies for associations of economic, socio-cultural and environmental interests	Increased	●

<b>Total of leasing expenses</b>	Increased	●
- of which for systems of environmental protection	None	

<b>Total labour cost, of which for activities regarding:</b>	Increased	● ●
- transport	Increased	●
- warehouse	Increased	●
- customer services	Increased	●

<b>Total amortizations and reserves, of which:</b>	Increased	● ●
amortizations of investments in tangible fixed assets related to warehouses and transport	Increased	●
amortizations of investments in intangible fixed assets related to quality improvement and business promotion	Increased	●
amortizations of investments in financial assets related to participations in firms, associations, funds and networks	Decreased	●
reserves for transport and warehouse risks	Increased	●

## Future business innovative actions

A final question regarded actions scheduled for the next five years (see Annex: Tab.8) in the environmental and logistics fields.

The received answers underlined the following main contents.

Actions to reduce:	Basic contents of the projects
Energy consumption (all the types)	Energy saving system and machineries Natural gas pipeline Energy generation from production discharges Solar panels Power factor corrector equipments Thermal efficiency systems
Wastes	Recovery of plastic packaging, ferrous and copper scraps Differentiated waste collecting
Acoustic pollution	Noise reduction equipments and monitoring systems Electric warehouse vehicles and other machineries with low acoustic emissions
Air pollution	Monitoring system of production dust emissions
Logistics costs	Railway siding between rail stations and industrial plants Warehouse-internal rail-tracks Optimisation of layout and production processes Rationalisation of transport services
Costs for electronic commerce	Improvement of e-commerce
Others	Education courses on biological methods in agriculture ISO 14001 certification

## 5.2. Logistics costs

A calculation of the logistics costs was made elaborating data of the balance sheets and adjusting the results according to basic criteria defined by a long series of research e.g.:

- Donald J. Bowersox, David J. Closs and Omar K. Helderich, *Logistics Management*, 3<sup>rd</sup> ed., Macmillan, New York, 1986
- James C. Johnson and Donal F. Wood, *Contemporary Physical Distribution and Logistics*, 3<sup>rd</sup> ed. PenWell Publishing, Tulsa, 1986
- James R. Stock and Douglas M. Lambert, *Strategic Logistics Management*, 2<sup>nd</sup> ed., Irwin Homewood, Illinois, 1987
- A. T. Kearney, *European Logistics*, 1994, enquiry quoted in European Communities, *Transport networks*, Kogan Page Earthscan, London, 1997.

Logistics costs	Voice of the Profit & Loss Account	Voice of the Statement of Assets & Liabilities
<b>Transportation</b>	<i>Production costs:</i> - transport services - labour costs for transport - logistics and transport systems with environment saving	
<b>Warehousing</b>	- warehouse services, packaging - labour costs for warehousing	
<b>Administration</b>	- (labour costs for transport, warehouse, customer services) / total labour costs x Total administrative and overhead expenses	
<b>Inventory carrying</b>	- packaging - operating social and economic marketing - fair trade - customer services (and electronic commerce) - risk assurance for warehouse and transport - reserves for transport and warehouse risks	<i>Inventory (stock value):</i> - final surplus of in working, semi-finished and finished products - final surplus of raw materials, subsidiary materials, consumables and goods

Also the logistics costs are presented in an anonymous manner but they strictly refer to individual firms.

The procedure was as follows:

- a calculation was made for each respondent company
- the calculations were separated in the three main sectors (industry, agriculture and services)
- for each sector, subcategories were created according to the typology of products, processes, markets (near or distant) and employment dimensions
- a range was calculated from the lowest to the highest costs for each main sector (industry, agriculture and services)
- the best performances were selected within the above range and presented in the following tables.

## Industry

Logistics costs	Percentage range of costs over turnover
Transportation	From 3,3% to 16,8%
Warehousing	From 0,9 to 2,5%
Administration	0,6%
Inventory carrying	From 1,7% to 2%
Total on turnover	From 6,4% to 21,9

## Agriculture

Logistics costs	Percentage range of costs over turnover
Transportation	From 0,2% to 5,3%
Warehousing	2,5%
Administration	From 1% to 2%
Inventory carrying	2,3%
Total on turnover	From 5,9% to 12,1

## Services

Logistics costs	Percentage range of costs over turnover
Transportation	From 1,5% to 4,7%
Warehousing	From 2% to 10,4%
Administration	From 5% to 0,1%
Inventory carrying	From 1,7% to 1,1%
Total on turnover	From 10,2% to 16,2



## 5.3. Overall comment

Firstly, it should be fully acknowledged that:

- the questionnaire was administered on a volunteer basis, for research purposes without an immediate return from a business point of view and a profit nature (e.g. quality improvement, technical assistance and managerial support to the firm, awards or financial incentives in favour of corporate social and environmental responsibility)
- even though the interviewed companies manifested a collaborative attitude, some of them did not answer all the questions in order to protect sensitive data or because it was difficult to calculate data in such a detail as it was requested by the questionnaire
- different level of entrepreneurial language, knowledge and skills emerged from the answers received to questions that were very technically formulated in all the three areas of investigation (logistics, profit and loss account, statement of assets and liabilities)

Secondly, the above-reported results delineate different sectoral profiles:

- *industry*; an important corporate culture emerges in well locally established companies that have national and international relationships, along with a consolidated practice of good industrial relations; in this case, more attention can be detected also on the environmental and social issues which progressively are incorporated in the company strategy, in the quality of the products and processes, improving the company image on the markets (e.g. responsible marketing and appropriate certifications); good business relationships are established with local firms and those that are socially and environmentally responsible; investments and expenses are made to improve human capital and work condition, to adopt systems that are environmentally friendly (also in warehousing and transport) and to utilise recyclable, recycled and not dangerous raw materials, dedicating some attention also on the impacts on a long term perspective
- *agriculture*; an interesting role is played by organic farms that express a developed awareness and knowledge on biological systems with a positive impacts also in logistics, reducing the material flows; less evidence is given to the social nature of the agriculture (and biological) activities generally because it “culturally” absorbed as an aspect of the environmental commitment; moreover, being very small farms, less attention is focused on the formalisation of procedures regarding work organisation and relationships, as well as certain lack of entrepreneurial culture can be detected in management, marketing, accounting, business relationships, etc.
- *services*; in comparison with industry and agriculture, a flatter profile emerges in the services “ideal-type”; this sector seems to be characterised by low awareness and attention on the issues that are at the basis of the SDL approach, with a prevalently traditional corporate culture focussed on economic and business relationships; anyway it is too risky and too early to arrive at an overall consideration, given that a wide range of activities are included in this sector making it difficult to generalise the enquiry results.

Thirdly, the experimentation demonstrated that:

- the questionnaire worked well allowing researchers to assess trends towards the SDL approach (performance indices)
- a separated section should be introduced into the questionnaire and dedicated to logistics costs, specifying the meaning of the related voices and suggesting the way to calculate them
- as far as the services sector is concerned, there is need for a more in depth enquiry through the enlargement of the sample and its articulation in different comparable types of activities (economic categories)

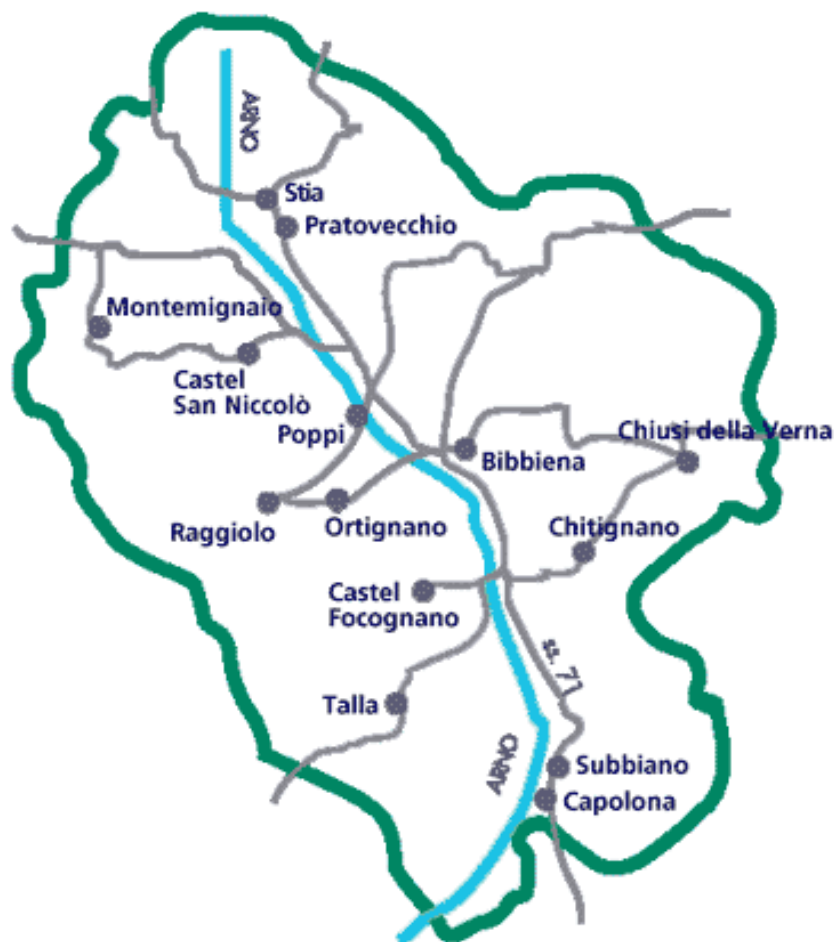
Fourthly, the experimentation opens a perspective for a permanent benchmarking system according to the following recommendations:

- the benchmarking system should be organised by a partnership between the local trade associations (e.g. industry, craftsmanship, agriculture, services) and managed with the involvement of the existing development agencies with the aim of combining technical, administrative, training and financial support to enterprises and small businesses towards the increasing of corporate social and environmental responsibility
- relationships between the individual firm and the benchmarking system should be nourished by contractual bases (e.g. companies that provide sensitive data will receive the aggregated results immediately and free of charge, while those not involved in the system will pay to receive a summarised report)
- the benchmarking system should be utilised as an instrument to foster quality certification, lowering its costs and promoting a preferential access to financial support through specific agreements between trade associations, public authorities, the regional loan institution (FIDI Toscana) and the relevant credit institutes that operate in the Casentino Valley



## District Logistics Analysis (DLA) Questionnaire

*April – May 2003*



This questionnaire is addressed to a panel of **firms** of **Casentino**.

Questions regard fluxes, organisation and costs of the business logistics

The questionnaire is structured in tables where the existing available data should be reported.

In case of difficulty or unavailability, please report anyway estimated data that relate to the individual business case.



A first series of tables regards fluxes of supply logistics (Tab.1), distribution logistics (Tab.2), reverse logistics (Tab.3) and refusal / waste logistics (Tab.4). Each table asks for information on: origin, destination, average distance, volume, costs, transport mode, transshipment nodes and load type.

A second series of tables regards the business organisation and the related costs.

Data from the Statement of Assets and Liabilities give information on total investments (Tab.5.A), tangible fixed assets (Tab.5.B), intangible fixed assets (Tab.5.C) and financial fixed assets (Tab.5.D), as well as on inventory – stock value (Tab.5.E).

Data from the Profit and Loss Account give information on turnover (Tab.6.A), production costs (Tab.6.B), amortizations and reserves (Tab.6.C) and on labour cost (Tab.6.D).

Data extracted from the Statement of Assets and Liabilities and from the Profit and Loss Account are accompanied by a short assessment of trends in the last five years.

Eventually, Tab.7 asks for information on goods and services acquired from firms with a social and environmental quality profile, while Tab.8 regards actions scheduled for the next five years.

All questions refer to the year 2002.

If 2002 data are not available, please refer to most recent year.

In any case, please specify the year of reference:

Year of reference	
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**According to law n. 675/1996 (privacy), all data reported in this questionnaire will be utilised only in anonymous and aggregated form. Absolute secrecy is guaranteed and all data, from which interviewed persons and situations could be identified, will be duly destroyed after the aggregated and anonymous elaboration.**













**Tab.4 - LOGISTICS OF REFUSALS AND WASTES OF THE PRODUCTION**

Refusal and waste typology	Destination (city / Nation)	Average distance covered in km	Volume in tonnes	Overall cost for logistics services	Only transport costs	Transport mode (a)	Transshipment nodes (b)	Load type (c)
Industrial not toxic								
Special and / or dangerous								
Liquid								
Urban and assimilated								
Packaging								
Agricultural								
(a) Transport mode	<i>Rail, Road, Sea and waterways, Air navigation</i> <i>Intermodal</i> – transport of goods using a number or variety of modes <i>Combined</i> – e.g. road-rail operation; principal part of the journey is by rail, waterways, sea, air, while the initial and final paths by road <i>Multimodal</i> – when at least two transport modes are utilised Intermediate places (e.g. depots, warehouses, hubs) where goods can also change transport modes. Please identify them by the name of the nearest city							
(b) Transshipment nodes								
(c) Load type	<i>General cargo</i> (semi-bulk) – goods are moved in packs, pallets, big boxes, rolls, coils, etc. Bulk – goods (solid and liquid) are loaded without packaging (e.g. sand, concrete, hides). <i>Unitised</i> – goods are loaded in apposite systems (container, swap bodies, shrink-wrapped, etc.) to facilitate their transshipment between different transport modes (intermodal transport) without any other manipulation.							



**TAB.5 - STATEMENT OF ASSETS AND LIABILITIES**

ASSETS / LIABILITIES	EURO	Regarding the last 5 years investments are:		
		INCREASED (+)	EQUAL (=)	DIMINISHED (-)

<b>Tab.5.A - Total Investments</b>		+	=	-
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<b>Tab.5.B - Total investments intangible fixed assets</b>		+	=	-
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OF WHICH FOR:				
<i>Ware houses and transport</i>				
Lands assigned to warehouse areas		+	=	-
Warehouses		+	=	-
- of which bio-buildings		+	=	-
Machineries for warehouse		+	=	-
- of which with low environmental impact (energy, noise, pollution, etc.)		+	=	-
Equipments for warehouses		+	=	-
- of which with low environmental impact (energy, noise, pollution, etc.)		+	=	-
Vehicles for warehouses		+	=	-
- of which with low environmental impact (energy, noise, pollution, etc.)		+	=	-
Systems to reduce packaging		+	=	-



Means of transport		+	=	-
- of which with low environmental impact (energy, noise, pollution, etc.)		+	=	-
<i>Total factory layout, warehouses included</i>				
Systems for energy saving and efficiency		+	=	-
Systems for water saving, efficiency and recycle		+	=	-
Systems for minimising greenhouse emissions		+	=	-
Systems for recovering and recycling of refusals, discards, used products, etc.		+	=	-
Bio-buildings		+	=	-
Systems for lowering ground pollution		+	=	-
Technologies for electronic commerce		+	=	-

<b>Tab.5.C - Total intangible fixed assets</b>		+	=	-
OF WHICH FOR:				
<i>Processes of quality improvement and business promotion</i>				
Environmental Quality certifications and marks (specify which:		+	=	-
Social Quality certifications and marks (specify which:		+	=	-
Economic Quality certifications and marks (specify which:		+	=	-



Strategic environmental marketing		+	=	-
Strategic social marketing		+	=	-
Strategic economic marketing		+	=	-

<b>Tab.5.D - Total financial fixed assets</b>		+	=	-
OF WHICH FOR:				
<i>Investments in participations</i>				
Participations in firms and associations of an economic nature		+	=	-
Participations – donations in firms and associations involved in environmental and socio-cultural issues		+	=	-
Participations in ethical and green funds		+	=	-
Participations in local production and consumption networks (purchase groups, etc.)		+	=	-
Participations in organisations (networks) for responsible consumption		+	=	-

<b>Tab.5.E - Inventory: stock value</b>				
Final surplus of in working, semi-finished and finished products		+	=	-
Final surplus of raw materials, subsidiary materials, consumables and goods		+	=	-
Total stock value		+	=	-



**TAB.6 - PROFIT AND LOSS ACCOUNT**

VOICE	EURO	Regarding the last 5 years the value is:		
		INCREASED (+)	EQUAL (=)	DIMINISHED (-)

<b>Tab.6.A - Turnover</b>				
Total revenues from products and performances		+	=	-
Estimate (in percentage) of the ecological property attributable to the value of the sale				.....%
Estimate (in percentage) of the socio-cultural property attributable to the value of the sale (responsible consumption, fair trade, etc.)				.....%

<b>Tab.6.B – Production costs</b>				
<b>Total production costs</b>		+	=	-
<b>Total of the purchases of raw materials, subsidiary materials, consumables and goods</b>		+	=	-
- of which recyclable, recycled, substitutive of dangerous materials		+	=	-

<b>Total of production expenses</b>		+	=	-
<b>OF WHICH FOR:</b>				
Research, tests, training, books, newspapers and magazines, socio-cultural initiatives, etc.		+	=	-



Studies for appraisal and assessment of environmental, economic and socio-cultural impacts		+	=	-
Studies for economic, environmental and socio-cultural diversification and innovation		+	=	-
Improvement of work organisation, behaviour, motivation, participation and social relations		+	=	-
Utilisation of renewable and recycled resources (energy, water, etc.) in the production processes		+	=	-

<b>Total of commercial expenses and charges</b>		+	=	-
OF WHICH FOR:				
Warehouse services		+	=	-
Transport services		+	=	-
Logistics and transport systems with environment saving		+	=	-
Packaging		+	=	-
- of which re-usable and recycled		+	=	-
Operating social marketing		+	=	-
Operating environmental marketing		+	=	-
Fair trade		+	=	-



<b>Total of administrative and overhead expenses</b>		+	=	-
OF WHICH FOR:				
Customer services		+	=	-
- of which electronic commerce		+	=	-
Risk assurance for warehouse and transport		+	=	-
Duties and taxes for the environment, waste, water, etc.		+	=	-
Penalties for lacked respect of social and environmental norms		+	=	-
Subsidies for associations of economic, socio-cultural and environmental interests		+	=	-

<b>Total of leasing expenses</b>		+	=	-
- of which for systems of environmental protection		+	=	-

<b>Tab.6.C – Amortizations and reserves</b>				
<b>Total amortizations and reserves</b>		+	=	-
OF WHICH FOR:				
Amortizations of investments in tangible fixed assets related to warehouses and transport		+	=	-
Amortizations of investments in intangible fixed assets related to quality improvement and business promotion		+	=	-





Amortizations of investments in financial assets related to participations in firms, associations, funds and networks		+	=	-
Reserves for transport and warehouse risks		+	=	-

<b>Tab.6.D – Labour costs</b>				
<b>Total labour cost, of which for activities regarding:</b>		+	=	-
- transport		+	=	-
- warehouse		+	=	-
- customer services		+	=	-

<b>Tab.7 – Goods and services acquired from other firms</b>	
Goods and services acquired from:	Amount in EURO
- socially responsible firms (SA 8000, etc.)	
- environmentally responsible firms (ISO 14001, EMAS II, etc.)	
- local firms (Casentino)	

<b>Tab.8 – Actions scheduled for the next five years</b>	
Actions to reduce:	Basic contents of the projects
Energy consumption (all the types)	
Wastes	
Acoustic pollution	
Air pollution	
Logistics costs	
Costs for electronic commerce	