

Republic of Croatia
Ministry of Development and Reconstruction

**NATIONAL ISLAND DEVELOPMENT
PROGRAMME**

*Oh, do not sleep you islands, our islands,
You gardens beautiful, floating in the sea.*
(Antun Mihanović, 1853)

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CONTENTS

	page
INTRODUCTION	5
I. NATURAL CHARACTERISTICS	7
1.1. Position, climate, sea	7
1.2. Soil, vegetation and animal life	8
II. POPULATION AND SETTLEMENTS	10
III. HERITAGE	15
3.1. Natural and cultural	15
3.2. Church	17
IV. ECONOMY	18
4.1. Tourism	19
4.2. Agriculture	23
4.3. Fishing	28
4.4. Traffic	30
4.5. Shipbuilding	30
4.6. Other industry	31
4.7. Mining	31
V. INFRASTRUCTURE	33
5.1. Water supply and sewage	33
5.2. Solid waste disposal	34
5.3. Electricity	35
5.4. Telecommunications	35
5.5. Roads, seaports and airports	36
5.6. Petrol and gas	39
VI. HEALTH CARE	41
VII. EDUCATION	44
VIII. ADMINISTRATIVE TERRITORIAL ORGANIZATION	47
IX. DEVELOPMENT LEVEL AND POTENTIAL	48
9.1. Actual situation	48
9.2. Comparative development advantage	49
9.3. Limitations	50
9.4. Island development at a crossroads	51
X. ENCOURAGEMENT OF ISLAND DEVELOPMENT	53
10.1. Goals	53
10.2. Principles	55
10.3. International conventions	56

10.4. Development measures _____ 57

XI. RESPONSIBILITIES AND TASKS OF THE NATIONAL AND COUNTY

ADMINISTRATION AND LOCAL SELF-GOVERNMENT _____ 59

11.1. Passage of the Island Act _____ 59

11.2. Passage of and amendments to laws relevant to the island development _____ 65

11.3. Programmes of full and sustainable exploitation of island resources, physical plans and scientific and professional documentation _____ 67

11.4. National infrastructure and superstructure programmes _____ 71

11.5. Activity of the Island Development Centre of the Ministry of Development and Reconstruction _____ 80

INTRODUCTION

Islands are a great treasure and special value in Croatia. At the moment their potentials are being poorly made use of, their originality insufficiently protected, their opportunities not encouraged or even discouraged. Almost throughout the last century, especially under both Yugoslav regimes, little or nothing was invested in them, so that year after year they increasingly lagged behind in economic and demographic terms.

Modern national reconstruction, building and development revival in Croatia includes a turn in the island development treatment. This National Programme has been prepared to this end, starting from the Constitution which states that the islands are under special protection of the Republic of Croatia. Its intention is to establish and clearly define the tasks to be performed or directed by the government in an organised and persistent manner for the continuing development of the islands, enabling the existence and return of their population and their economic prosperity.

Sustainable development reflecting a harmony between man and nature, in the course of which the exploitation of natural resources is conducted only to an extent that does not risk their destruction, is specially appropriate for our islands where the environment protection must always be maintained at the highest possible level. This is why special promotion measures have been proposed which do not run counter to this basic requirement.

The first section of the Programme contains available information on the islands. During our work on this document we often saw such information were scarce, not available or not systematised. It took us great effort to collect and present them concisely here. From these information and data there can be seen the basic problems of the islands today, which have been inherited from previous times.

Primarily, the fact is that on a great majority of our islands the population has been dwindling over the past seven decades. People are getting fewer and fewer, especially young people and professionals. This is aggravated by all the limitations and shortcomings of the infrastructure, links to the mainland, education, health care, culture etc.

Measures have been proposed based on the knowledge of the facts and the actual situation and the causes. They relate to various fields, always from long-term aspects.

The measures reflect the efforts to stop the tragic tendency of island desertion, with incentives to islanders in the form of palpable economic and social measures, especially for the young people to return. This is also linked to a wish to motivate the professionals needed for a demographic and economic revival to settle there.

Beside these general measures concerning all islands, specific measures have been proposed for the underdeveloped islands (majority) where life is harder but needs to be maintained, though. This can only be done by means of additional stimulation.

To keep islands alive, encourage demographic revival and economic progress, together with preserving the harmony of unsurpassable natural values, are the objectives this Programme seeks to realise. This can be achieved through small scale but permanent and well organised long-term investments. The islands require so little, and can soon contribute much more to the national economy.

In spite of the historical moment in which national defence and post-war reconstruction are priorities, this is the right time for an active and well considered treatment of islands, the right time for the reconstruction and revival of the Croatian islands.

I. NATURAL CHARACTERISTICS

1. Position, climate and sea

The Croatian islands include almost all islands on the east coast and the central area of the Adriatic, making the second largest archipelago in the Mediterranean. There are 1,185 of them, geographically divided into 718 islands, 389 rocks and 78 ridges. Although they determine the territorial sea which makes almost 37 % of the total area of Croatia (without the islands the territorial sea would be reduced by two thirds), the islands make up just about 3,300 km² or 5.8% of the Croatian land. The largest of them is the island of Krk (409.9 km²). There are 77 islands larger than 1 km², and only twenty exceed 20 km². Due to their particularly indented coastline (Pag is the most indented and Hvar is the longest) they feature more coast line than the mainland. Of 5,834.9 km of the Croatian coast line 4,057.2 km (69.5%) is island coast. The islands are usually divided into the Istrian, Kvarner, North Dalmatian, Central Dalmatian and South Dalmatian groups. The sea which rose during the last ice period divided parts of the land and formed islands, occasionally creating steep coast, and even cliffs at places. Today's relief was created by erosion, as well. Several lime-stone ridges on the largest islands rise above 500 m above sea level. The highest peak is Vidova gora (778 m) on the island of Brač.

The 62 km long Pelješac peninsula is usually listed together with the islands. With its 348 km² it extends in the same direction as the surrounding South Dalmatian islands. Pelješac is of the same structure as the islands, has the same climate, and its vegetation and animals resemble more that of the islands than that of its hinterland. All inhabited islands of East and Central Adriatic belong to Croatia. According to the 1991 census there were 67 such islands with a surface area of 3,062 km². There are also about 15 occasionally inhabited islands (during the season) which together with the uninhabited islands make a surface area of 143 km².

The Croatian coast and islands lie within the Adriatic type of the Mediterranean climate. Summers are hot and dry, with high insolation rate. Particular climate characteristics differ from island to island, depending on the compass direction, height above sea level or exposure to winds. In terms of climate, there are frequent differences between the windward and leeward sides of islands. The Kvarner islands are reached by mountain and continental influence in the winter. The Dalmatian islands are under more maritime climate influence, because there Adriatic is deeper and wider so it can accumulate more heat. Except for the island of Krk and the northern parts of the islands of Cres, Pag and Rab, the islands lie within the January isotherm of 6°C that marks the boundary of the Mediterranean climate. Average July temperatures are between 23.7 °C and 25.6 °C, which is primarily the effect of a great insolation. The Croatian islands are among the sunniest areas in Europe: they average 2,200 to 2,650 hours of sunny weather a year, which means that on the average the sun shines from 6 to more than 7 hours a day. The precipitation distribution is typically Mediterranean. Maximums are in November or December, while minimums are in July or August.

As elsewhere in the karst, rain vanishes in the depth and finds its way to the surface again at the juncture of lime-stone and impermeable rocks, in a form of springs or undersea wells. There are no permanent watercourses. During the rain period on terrain built of semipermeable and impermeable rocks there are occasional watercourses no bigger than a stream, as well as karst pools. There are two lakes on the island of Krk, and the Vrana lake on the island of Cres, a natural phenomenon of exceptional value and economic importance. It was created in a karstic sink by water rising from the depths, and its annual performance depends on the precipitation. The lake forms a 74 m deep cryptodepression holding 200,000,000 m³ of potable water. It is 5.5 km long and 1.5 km wide, with a surface area of about 5.5 km².

The major factor of the island climate and vegetation, the Adriatic, is a warm sea. Its surface temperature never goes down below 10° C even in the winter, or exceeds 25° C in the summer. With the exception of major seaports, the sea around the islands is unpolluted, as is the rest of the Croatian part of the Adriatic.

1.2. Soil, vegetation and animal life

The island soil was determined by the geological structure, winds and precipitation and, more than is the case with the mainland, man. The most common type of soil is red earth (*terra rossa*) which fills the karst valleys, sink-holes, ravines and other karst depressions. It can be seen everywhere except on the islands of Susak, Vele and Male Srakane and Biševo. Long tillage and sedimentation of humus caused red earth to partly change to brown maritime soil. At dolomite terrain there are sandy heaths, light brown soils with a surface abounding in humus, and there are porous lytogenous and carbonic soils at diluvial flood areas, which cover the areas of occasional watercourses. In the flysh zones there are greyish yellow and yellow clay soils which are hardly fertile. The island mineral resources are often limited to a frequently very valuable architectural and engineering construction stone and sea salt.

All peculiarities of the island ecosystems at large can be seen on the Croatian islands, too. There is a dominant Mediterranean evergreen vegetation with the ecologically most important maquis, degraded forest culture of evergreen oak, crack phyllirea, maritime sabbine, juniper, myrtle, spruce, strawberry tree, laurel, rush-leaved broom and some other plants. Maquis has been best preserved on the Brioni Isles, and it is occasionally in very good shape on Rab, Cres, Lošinj and Dugi otok, Brač, Korčula, Lastovo and Mljet. Much larger area is, however, covered by shrublike degraded maquis or garrigue created by massive tree felling, erosion and in burnt areas. On the islands there are also vegetative communities consisting of thorny and fragrant plants, brambles, sage, immortelle, spike, wormwood and thorn-bushes.

Forests of Aleppo pine, maritime and cluster pine form a special part of the island vegetation. They are mostly man-grown, but there are some wild growing forests as well. On Brač, above 400 m, there are also wild growing Dalmatian black pine forests. On Krk and in northern areas of Pag, Cres and Rab, which lie beyond the January isotherm of 6 °C, there is a dominant deciduous sub-Mediterranean community of pubescent oak and oriental hornbeam, with deciduous brushwood on the slopes.

On the Croatian islands small game, including the predators, dominate, with dozens of endemic plant and animal species. The islands particularly abound in birds. The best known and the most threatened species is the griffon vulture on Cres and Plavnik. The fauna is mostly autochthonous. Of all species brought to the islands the island ecosystem is to the greatest extent influenced by hares, partridges, mongoose, deer and mouflons. Of the domestic animals there are, of course, sheep and goats, at some larger islands even cows, while until recently loads were carried by donkeys or, on larger islands, even horses.

II. POPULATION AND SETTLEMENTS

More recent social and economic history of the Croatian islands is best reflected in the related demographic trends. Since 1857, when the first official census took place, the islanders reached their peak in 1921, in terms of their number and activities, and subsequently dwindled below the last century figures in 1981, at the end of the global population boom.

Table 2.1. Population of the Croatian islands from 1857 to 1991 (exc. Pelješac)

CENSUS YEAR	POPULATION	INDEX 1857=100
1857	117,481	100
1900	166,91	142
1910	173,263	147
1921	173,503	148
1931	165,624	141
1948	151,835	129
1953	150,073	128
1961	139,798	119
1971	127,598	109
1981	114,803	98
1991	110,953*	94

* Estimate based on the reproduction of the existing population and natural trends for individual age groups
Sources: Korenčić, Mirko: *Naselja i stanovništvo Hrvatske 1857. - 1971.*, Dokumentacija br. 553 RZS, Zagreb 1984. Dokumentacija br. 881 DZS, Zagreb 1992.

Islands belong to the ethnically homogenous regions of the Republic of Croatia. In 1991 92.4% of all islanders declared themselves Croatsians. That year, an average island settlement had 417 inhabitants, which is below the Croatian average. There are no larger urban agglomerations on the islands; no single town has more than 10 thousand people. The largest town, Mali Lošinj, has 6,566 inhabitants and is the only island settlement with more than 5 thousand inhabitants. The Croatian islands have always been less inhabited than other Mediterranean island groups, although many criteria (vicinity of the mainland, island centres, millennium old settlement tradition, size and traffic importance of the Adriatic etc.) would generally suggest more population and larger agglomerations.

In the twenties and thirties islanders mainly emigrated overseas. Immediately after WWII they emigrated to bigger towns on the coast and mainland. In the sixties they left abroad as migrant workers. They kept emigrating overseas all the time, but the number of such emigrants decreased after WWII.

The dwindling of the population began in 1910 on islands with more than 2,000 inhabitants, and as late as in 1921 on smaller islands. The impetus to emigrate abroad came later to smaller islands because between the two world wars their population first left for larger islands and then to the mainland. Islanders from small islands started out overseas only after the crisis was substantially felt in the settlements on larger islands.

In the fifties, the emigration of the islanders turned into an exodus. For the first time, small and medium sized islands were vacated first, the population of many of them simply becoming extinct. In 1981, the islands with more than 2,000 inhabitants thus had more population than 1857; the islands between 500 and 2,000 had less population (while the islands with less than 500 inhabitants had less population than in 1857 as early as 1961). In the fifties, annual population growth rates were negative on all islands, except Rab. By 1981, one fifth of the population left large islands, more than a third left medium sized islands and, disastrously, three fourths left small islands. Emigration from the islands nearest to the coast differed from the open sea islands. The population of the latter, mostly smaller islands, responded more slowly to the appeal of the mainland, but when the emigration began these islands came rapidly on the verge of extinction. After the war, the population of the islands nearest to the coast dwindled at an annual rate of -0.6, and the population of the open sea islands at an annual rate of -2.4, resulting in the reduction of the open sea island population by one half.

In the sixties, extreme depopulation was caused not only by lasting and extensive emigration but also - for the first time on the islands - by a regressive birth rate (more dead than new-born), which today is present on almost all Dalmatian and less frequently on the Kvarner islands.

If we classify the islands according to the former island and mixed mainland/island municipalities, we can see that after WWII the island population of mixed municipalities decreased by 47%, while the population of island municipalities in their own right decreased only by 17%. An all-time population low for the mixed municipalities was recorded between the 1971 and 1991 censuses, in the same period in which these municipalities had a considerable increase in population in excess of the natural birth rate. In the sixties the population of the islands which were connected to the mainland by bridges (Pag, Vir, Murter and Čiovo) dwindled faster than the population of the islands which could only be reached by ship. This trend abated in the seventies (e.g. there was a weekend house boom on the island of Čiovo). The group of islands with bridges was joined by Krk which at that time began to develop as a suburban area of Rijeka.

The island birth rate has not been sufficient for normal population reproduction for decades now. Until recently, the natural growth, with the exception of Rab, was small or negative, the worst situation being recorded on the islands of Krk (-3.6●), Vis (-5.3●) and Hvar (-0.7●), as well as the Cres-Lošinj archipelago (-1.7●) (Enclosure 2.). Low or no natural growth on the islands is accompanied by negative migration figures. Between 1971-1991 these figures were positive only for the islands of the municipalities of Cres-Lošinj and Krk.

Insight in the island population figures turns out more complete if we divide island settlements into groups. They may be divided into the Kvarner and Dalmatian islands, towns and villages, settlements facing the mainland, settlements in the interior of the islands, and settlements facing the open sea, as well as the settlements of the former 9 island proper and 6 mixed mainland/island municipalities. The total population figures in the most relevant recent period 1961-1991, birth rate, death rate and migration balance of such groups show the complexity of the Croatian island demography. (Tables 2.2. - 2.4.).

Table 2.2. Total population number of Croatian island settlement groups 1961-1991

Groups	1961	1971	1981	1991	1991*	1991/ 1961
Kvarner islands	42,919	39,036	39,648	45,372	41,120*	105.7
Dalmatian islands	96,879	88,562	75,155	81,075	69,833*	83.7
Towns	56,284	55,960	57,429	65,729		116.8
Villages	83,514	71,638	57,374	60,718		72.7
Settlements facing mainland	56,857	53,470	48,280	53,536		94.2
Settlements in the interior of islands	42,029	36,308	29,641	29,918		71.2
Settlements facing open sea	40,912	37,820	36,882	42,993		105.1
Settlements of former island municipalities	93,594	87,164	84,278	92,812		99.2
Settlements of former mixed mainl./island municipalities	46,204	40,434	30,525	33,635		72.8
Croatian islands	139,798	127,598	114,803	126,447	110,953	90.4

* Estimates based on the reproduction of the existing population and natural trends in individual age groups

Table 2.3. Settlement groups on the Croatian islands 1961-1991

Groups	1962 - 1971			1972 - 1981			1982 - 1991		
	BR	DR	GR	BR	DR	GR	BR	DR	GR
Kvarner islands	5,017	5,122	-105	4,852	5,065	-213	5,572	5,401	171
Dalmatian islands	10,533	10,385	148	8,914	10,727	-1,813	8,219	1,053	-2,312
Towns	7,554	6,360	1,194	8,354	6,966	1,388	8,928	7,365	1,563
Villages	7,996	9,147	-1,151	5,412	8,826	-3,414	4,863	8,567	-3,704
Settlements facing mainland	6,438	6,217	221	5,681	6,615	-934	5,734	6,631	-897
Settlements in the central part of islands	4,141	4,797	-656	2,815	4,364	-1,549	2,569	4,417	-1,848
Settlements facing open sea	4,971	4,493	478	5,270	4,813	457	5,488	4,884	604
Settlements of former island municipalities	11,129	10,706	423	10,718	10,887	-169	11,141	11,342	-201
Settlements of former mixed coast./island municipalities	4,421	4,801	-380	3,048	4,905	-1,857	2,650	4,590	-1,940

Birth rate (BR), death rate (DR), growth/regression (GR)

Table 2.4. Migration balance for groups of settlements on the Croatian islands 1961-1991

Group	1961 - 1971	1971 - 1981	1981 - 1991
Kvarner islands	-3,805	825	5,553
Dalmatian islands	-8,404	-11,594	8,232
Towns	-1,588	81	6,737
Villages	-10,621	-10,850	7,048
Settlements facing mainland	-3,625	-4,256	6,253
Settlements in the central part of islands	-4,977	-5,118	2,125
Settlements facing open sea	-3,607	-1,395	5,507
Settlements of former island municipalities	-6,915	-2,717	8,735
Settlements of former mixed coast./island municipalities	-5,294	-10,938	8,735
Croatian islands	-12,209	-10,769	13,785

Sources: National Statistics Institute

If the 1991 census figures are corrected in order to obtain a realistic migration balance in the decade between the last two censuses, the overall emigration picture is much worse.

The migration balance based on real population figures in the 1981-1991 period shows the following:

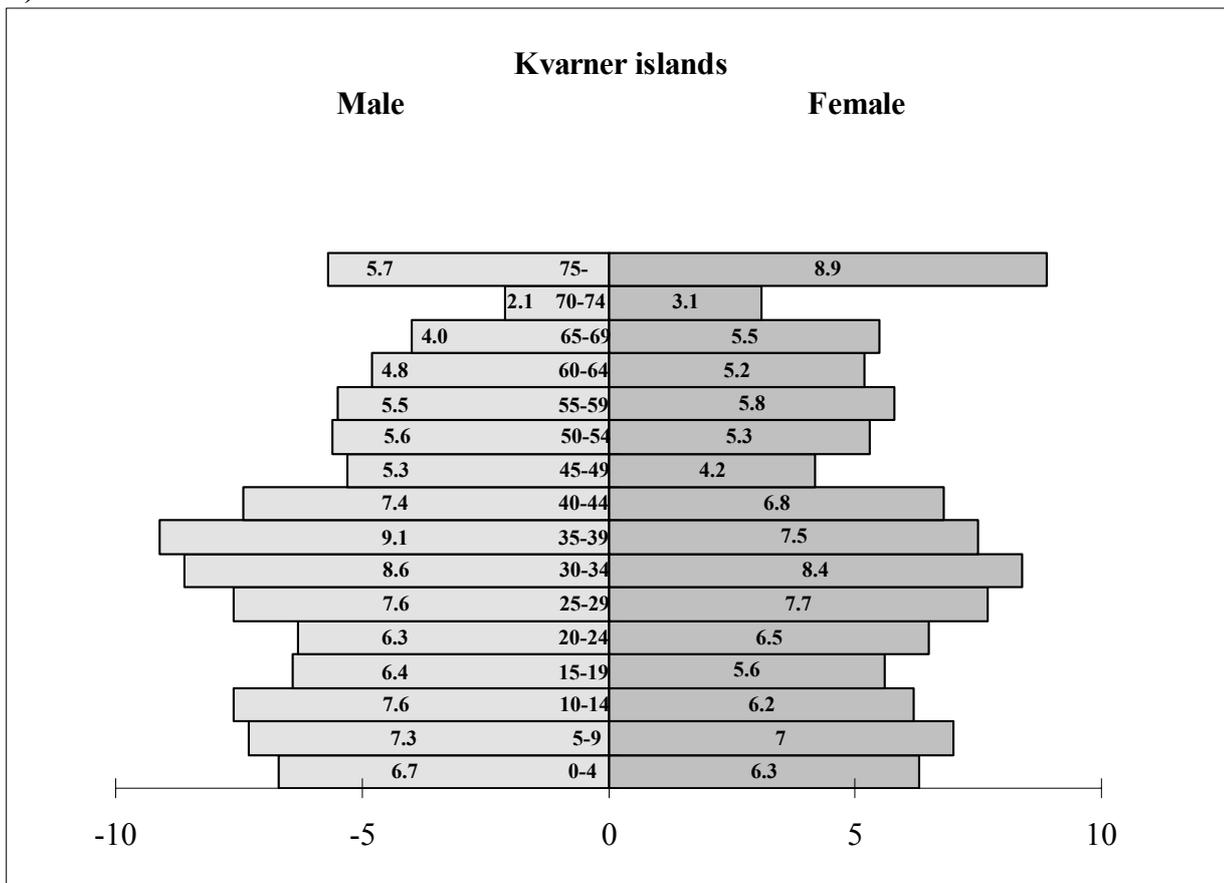
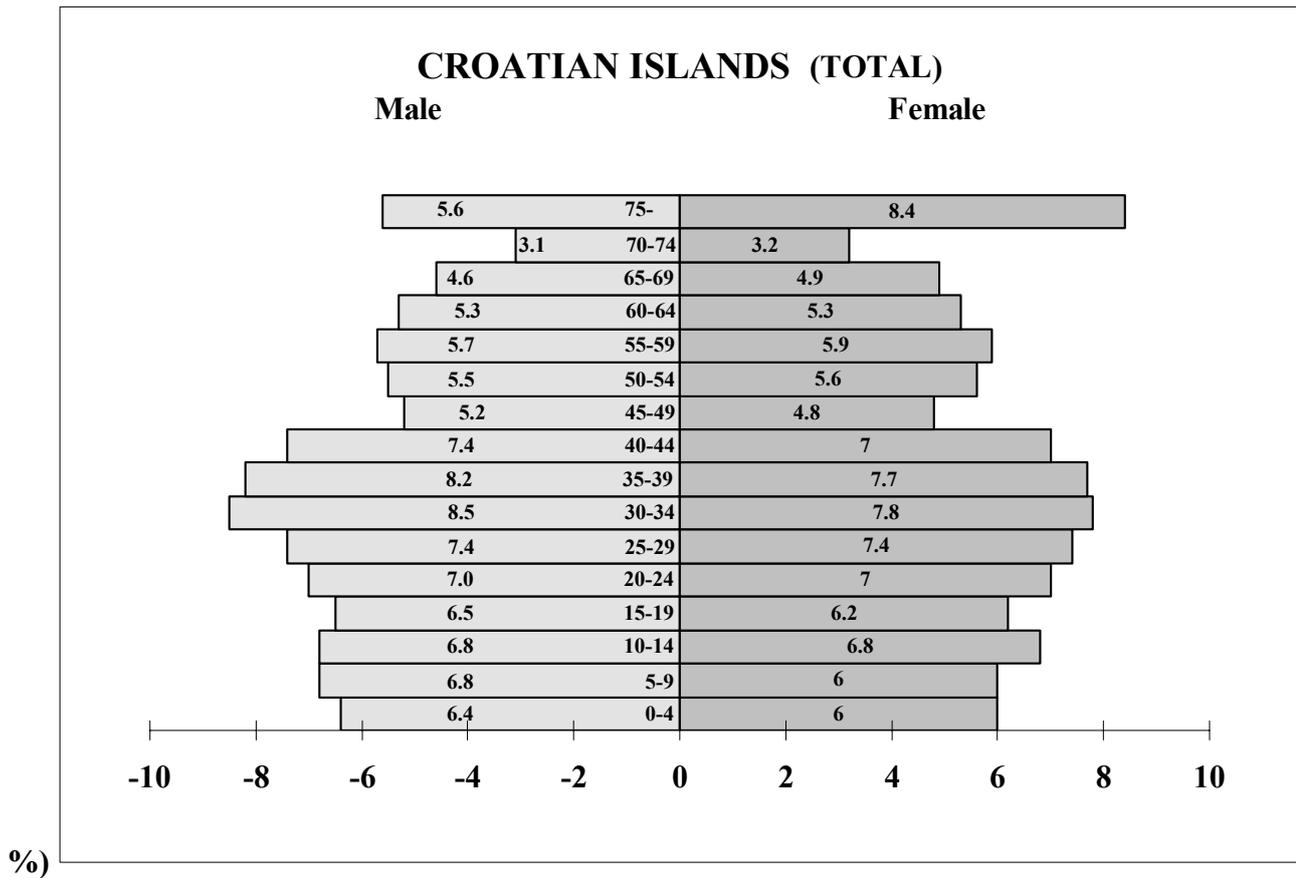
Kvarner islands	1981 - 1991	+1,301
Dalmatian islands	1981 - 1991	-3,010
Croatian islands		-1,709

The figures relating to inhabited islands are also to be corrected. If we determine "inhabited" by whether there is at least one settlement on the island, 67 islands are inhabited, as stated by the official statistics. However, since there are islands with no permanent residents, islands with scattered weekend houses which are not registered as settlements, and islands with lighthouse personnel as the only occupants, it follows that there are no more than fifty permanently inhabited islands, while there are about one hundred permanent and occasionally inhabited islands taken together.

The actual demographic situation shows how serious the consequences of such trends are. The island age distribution, after so many decades of emigration and natural regression, is extremely unfavourable. The average age of the islanders is 40 years (Croatian national average in 1991 is 36.5 years); the share of population over 60 is 25.7%, and the share of the people younger than 15 is 17.4% (national: 17.4% or 19.4% respectively). The biggest demographic and economic problem is the reduction in the share of reproductive or working population. On the Croatian islands there are 56.9% inhabitants between 15 and 60.

This all applies primarily to small and open sea islands. The ageing index (ratio of people over 65 and people under 15), which at 40% already indicates that the population observed is ageing, has reached three-digit figures on those islands. The gender distribution is normalising very slowly since the exodus in the fifties. With the exception of Lastovo and Rab, the female share is still too large.

Figure 2.1. Island population age (share in



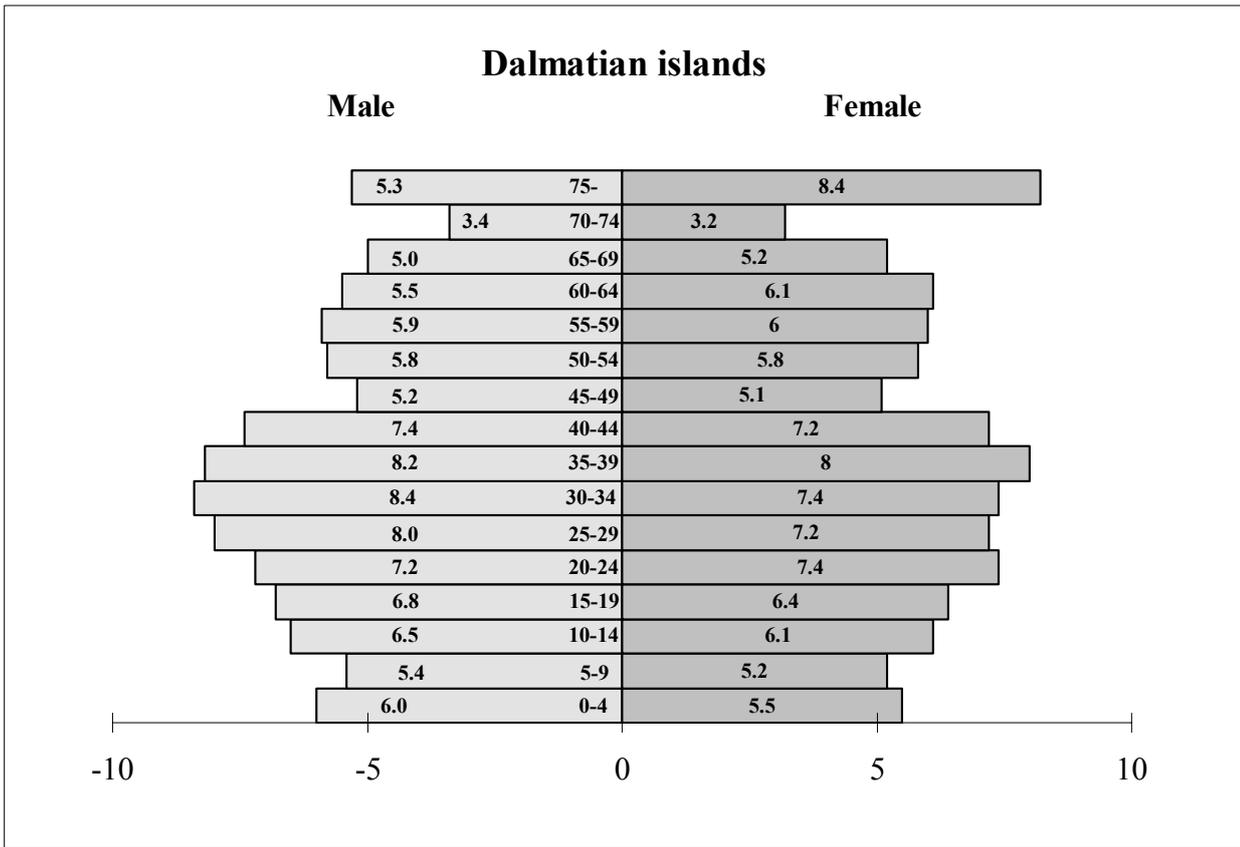
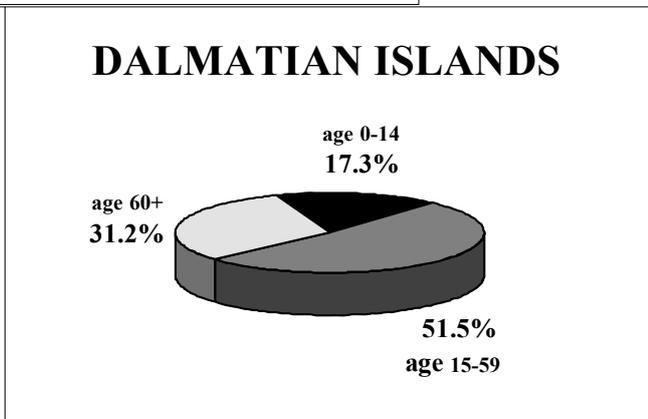
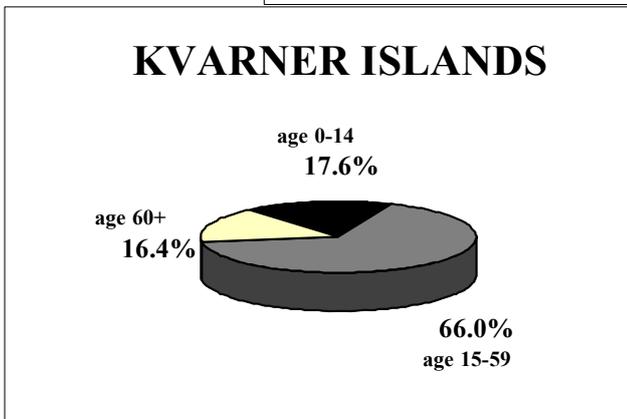
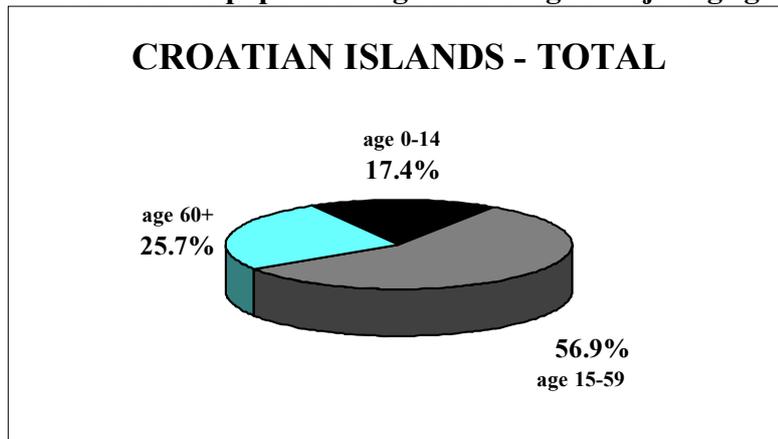


Figure 2.2. Croatian islands population age according to major age groups



Deserted villages in the interior of larger islands, rapid growth of a few settlements on the island coast and abandoned small islands make the picture of the Croatian islands. If the actual trends persist, at the beginning of the next century the population of one fourth of the island settlements will have become extinct.

III. ISLAND HERITAGE

3.1. Natural and cultural heritage

Ecosystems of the Croatian islands, their endemic plant and animal species and geological forms are extremely valuable. Thus, the list of the officially protected natural heritage is extremely long, given the relatively small total island area. Of the 7 Croatian national parks 3 are on the islands including the adjacent sea (Brijuni, Mljet and Kornati), and there is the Telašćica park of nature on the island of Dugi otok. Besides, on the islands there is one botanical reserve, 6 ornithological reserves, 3 forest reserves, 7 forest parks, 10 protected landscapes, 2 geological and 7 geomorphologic nature monuments, 3 park architecture monuments, and a number of rare trees. The most plant and animal species are to be found on Krk and Cres, the islands on the 45th parallel teeming with life.

The cultural heritage is equally overwhelming. Measured, as usual, by the number of material monuments, the list is a very long one. There is no known historical period without traces left on our islands (Palaeolithic, Neolithic, Illyrian (Liburnian), Roman, Croatian finds). There are 667 immovable monuments which qualify for the official protection as a part of the Croatian heritage (Enclosure 4). The movable ones have not even been counted yet.

Table 3.1. Protected cultural monuments on the Croatian islands

Type of monument	Monument register	Preventive protection	Total
Memorial sites	3	-	3
Historical urban and rural units	55	10	65
Historical complexes	16	-	16
Memorial monuments	52	-	52
Civilian buildings	157	7	164
Defensive buildings	27	-	27
Economic buildings	13	-	13
Sacred buildings	254	8	262
Tomb buildings and units	5	-	5
Public sculptures and urban accessories	3	-	3
Archaeological land sites	33	1	34
Archaeological underwater sites	24	-	24
Total	642	25	667

Source: Government Agency for the Protection of Cultural and Natural Heritage

Seabed, landscapes, cliffs, endemic plant and animal species and anything else that can be classified as the natural heritage of the islands is intertwined and, indeed, molten together with thousands of kilometres of dry stone walls and thousands of hectares of terraces, with villages and ancient towns, churches and monasteries in the wilderness, fortresses and lighthouses, and anything else that can be seen as the cultural heritage, whether it is included in the list of 667 protected monuments or not.

Both intertwined components of the island heritage could hardly be protected independently of each other. Grown into the island environment the traditional building art cannot even be observed properly, let alone evaluated, if separated from the natural heritage. On the other hand, it is around dry stone walls

and water holes and once unpolluted waters of the island seaports that many endemic plant and animal species thrive.

Autochthonous, mostly rural architectural heritage was developed under harsh conditions. The islanders knew their non-exuberant ecosystem and their winds and bays well, which in the end determined the appearance of terraces and field lanes, how and what of and where settlements and ports were to be erected. The most impressive monument to a life of hardship and colossal human effort are dry stone walls created, after clearing untillable land, by skilful assembly. In their forms, surface, appearance and use they are one of the most representative examples of autochthonous popular building art which differs from island to island. The Croatian islands vividly show that the cultural heritage, beside the architecture, is also made up of the language, customs, skills, tradition, costumes and alike, as well as of the mental attitude and outlook developed through centuries. The islands in their presence and the islanders in their consciousness have preserved the major values of the national identity. From the archaeological sites, sacred and secular buildings, over the *glagoliza* script, writings and literary heritage to all kinds of crafts and skills - they are all admirable features of the national identity and continuity.

The islanders are determined by two seemingly contradictory peculiarities: on one hand a high degree of autonomy and self-containment, i.e. necessarily relying on themselves and their own microcosm, and on the other an enviable degree of openness toward civilizational achievements, primarily resulting from the positive effects of the sea and sailing. An analysis of the immigration patterns in the past and the present emigration trends, sedimentation of cultural layers, distribution of island settlements, distribution of activities in the island and maritime areas, linguistic influences and contamination, all undoubtedly point out to the two components as the essential determination of the island identity.

Moreover, the islanders are multicultural personalities. This applies primarily to the rural population of small islands with no towns, where one person regularly combines a large number of skills: they are all farmers, fishermen, ranchers, sailors and tourist workers... at the same time. It is clear that such complex profile of an islander follows from the Croatian island as it is, and the economic activities that are only possible in such environment.

It is for many reasons that the islands have best preserved the ancient language features the study of which is necessary for the overall knowledge of the national linguistic issues. It is a fact, however, that the lack of cultural and educational activity, along with many other reasons, made room on some of the islands for various deviations of which drugs are only the tip of an iceberg.

Over the past few decades the natural and cultural heritage has been increasingly neglected, it disintegrated and became forgotten instead of maintained, and the harmony between the natural and the architectural complex is seriously off balance. The natural heritage is being cleared for new, mostly housing construction, infrastructure corridors attack the landscapes, and irregular dumps and too short sewage lines bring dirt and, increasingly, pollution to the island environment, threatening the natural heritage. Modern construction work thus creates an architectural heritage separate from the nature, while new consumption patterns and new life styles break the centuries old continuity of the cultural development. Protected buildings frequently serve as quarries, customs are forgotten, old tools are falling apart, and costumes are rotting. In terms of preservation, the underwater cultural heritage was treated worst: due to insufficient care and poor control there occurred extensive devastation. Only a few full fledged recovery, treatment and presentation operations have been undertaken: Ždrijac in the vicinity of Nin, Gnalić in the vicinity of Biograd.

Many facilities which not so long ago served as schools and for cultural activities have been turned over to other uses in the last half century. The so-called community centres, especially in the small settlements on small islands, were turned into shops, surgeries, various offices etc. Degradation is rarely countered in an organised manner and with sufficient funds, so that a lot, and often

everything, depends on the enthusiasm of individuals. Vast differences in the levels of cultural organisation from island to island were effected by some very special individuals.

Deserted villages, neglected dry stone walls, customs and speech dying out with the last inhabitants threaten to totally disrupt the harmony of nature and man on the Croatian islands.

3.2. Church on the islands

The Catholic Church is inseparable from the island heritage which it helped create and preserve. Today, we have two dioceses with their seats and parishes exclusively on the islands: The Krk diocese with 51 and the Hvar-Brač-Vis diocese with 45 parishes. Other island parishes belong to dioceses with their seats on the mainland: the Zadar diocese has 41 island parish, the Šibenik diocese (10), the Split-Makarska diocese (6), and Dubrovnik diocese (17).

According to the data supplied by the parish priests, especially from the parishes which lie further away from the mainland, the number of permanently present inhabitants (especially in the winter) is somewhat smaller than shown by the 1991 census.

Some of the once well populated island parishes have dwindled to about a hundred people. One priest frequently takes care of several parishes, so there are less parish priests than parishes. It should, however, be taken into account that on the islands there are some 20 monasteries, so that on all islands taken together there live and work approximately 180 priests (ordinary priests and monks) within and beyond parishes.

Famous are the Benedictine nunneries for both their history and enclosure. Of the total of 8 such nunneries in Croatia 5 are on the islands, with app. 50 nuns. Open nunneries are much more numerous. Nuns are active in some 40 places in both their nunneries and parishes. There are approx. 200 nuns.

Observing the number of the island church goers and priests, monks and nuns over a longer period, we can see a general regressive trend. The number of church goers is decreasing and the age of the population increasing, which means that the vitality of our island parishes is reduced in economic, social and religious terms. One of the indicators is also the number of novices on the islands. There used to be a lot more of them.

IV. ECONOMY

Based on the natural environment the island economy as a rule is simple, and its structure, as compared to the mainland economy, has always appeared to be scarce. Today, the islands still lack entire branches of economy, and the economic units which often are the only representatives in their branches can have as little as ten employees.

The economic history of the islands is a special one, too. From the antiquity until today the islands have gone through ups and downs which as a rule are more optimistic or disastrous, respectively, than they are on the mainland. To a lesser extent the oscillations are to be assigned to occasional alteration of the natural conditions on the islands. They have, however, been far more influenced by trade and traffic which grew and spread, increasingly linking the island economy to the mainland economy. This way the island comparative advantages have been created, and the islanders have always been quick to realise it.

The history abounds in examples of the narrowing of the production on small and medium sized islands. Sometimes it was reduced to a single product which sold well on the mainland and quickly made the

island of origin rich. The comparative advantages observed and used, however, depend on the trends on the mainland which do not last long. When they vanish, the islanders have to turn to other products or, if need be, other industries. The history of the islands abounds in examples of inability to abandon a specialised production and substitute it by some other production. In using their comparative advantages and changing from a mostly natural to market economy, the islanders could rarely deal with the market showing them its ugly face. Limited ability of swifter change in the production has always characterised the island economy as opposed to the economy of the mainland regions.

The history after WWII differed on the Croatian islands from that on other Mediterranean islands. As the only ones remaining under socialism they were the only ones to experience rapid industrialisation, concentration of rural population in a few towns, insensitive treatment within the general economic policy reduced to subsidising underdeveloped regions, reviling of the private sector, a socialist enterprise as practically the only form of economic organisation etc. This all affected many of the Croatian regions, whereas the islands yet again turned out to be more sensitive than the mainland. The island economy did not develop, while the mainland economy was more appealing than ever. Already in the fifties there began the emigration, and in the sixties there was only one island in Croatia whose population was not dwindling.

The island economy is still poorly structured. Agriculture is neglected and tourism dominates followed by trade, shipping and some industry: ship maintenance, fish processing, stone quarries, wine production and distilleries as the most important. Some 45,000 islanders are employed today, of whom somewhat less than 40,000 on the islands. The rest live on the islands and work on the mainland. The costs of living and investment are higher than on the mainland owing to transportation costs. On larger and more easily reached islands the costs are higher by 10% , on smaller and more distant islands by as much as 30%.

The share of the islands in the economy of Croatia never exceeded 5 -7%, no matter what indicator was in question. The share of island investments in the former socially owned sector of the Croatian economy was between 2% and 3 % in the 70's; it rose to 4-5 % in the 80's, only to fall back to 2% in the 90's. The share of the island GDP of the former socially owned sector in the national GDP was below 2% in the 80's. By the mid-80's it slightly increased to surpass 3% in the record breaking 1988 tourist year, only to plummet below 2% afterwards. After long marginalization, slow economic rise and quick falls, immigration and desertion, the island economy is still rather low. Special attention deserve merely tourism for its profitability, agriculture for its inadequately used resources, fish processing for its exceptional social and even demographic importance at some places, and traffic on which the overall position of the islands within the Croatian and Mediterranean economic area depends.

4.1. Tourism

Of a total of 287 island settlements (1991) tourists were recorded at 120 destinations, including three island national parks - Brioni, Kornati and Mljet, and the Telašćica park of nature. The type of accommodation is much less favourable than it is on the mainland. On the islands, the primary accommodation has a share of only 29.3% in the total accommodation, compared to 34.1% on the mainland. The share of the primary accommodation on the islands has relatively increased, mainly owing to substantial decrease if the share of houses owned by the citizens as well as of the workers' and youth holiday homes.

Table 4.1.1. Accommodation on the islands and the coast 1981,1986,1991 and 1993

ISLANDS	HOTELS	CAMPS	PRIVATE ROOMS	OTHER*	TOTAL
1981	32,588	39,670	73,792	22,256	168,306
%	19	24	44	13	100

1986	38,511	58,643	85,904	23,863	206,921
%	19	28	42	12	100
1989	39,437	63,124	94,622	27,297	224,480
%	18	28	42	12	100
1991	31,325	53,473	36,769	10,728	132,295
%	24	40	28	08	100
1993	37,934	60,953	28,186	2,232	129,305
%	29	47	22	02	100

COAST	HOTELS	CAMPS	PRIVATE ROOMS	OTHER*	TOTAL
1981	116,411	200,418	136,962	73,418	527,209
%	22	38	26	14	100
1986	135,440	214,239	179,861	79,896	609,436
%	22	35	30	13	100
1989	145,451	229,976	208,665	73,627	657,719
%	22	35	32	11	100
1991	125,686	193,027	86,254	278,895	432,862
%	29	45	20	06	100
1993	137,545	208,089	49,505	8,513	403,652
%	34	52	12	02	100

*Children's, youth, and workers' holiday homes, health resorts and mountain lodges

Source: Tourists stays at seaside resorts. National Statistics Institute. Zagreb, 1982, 1987, 1990, 1992, 1994.

The tourist supply on the islands differs from island to island. The Kvarner and North Dalmatian islands make up nearly 75 % of total accommodation on the Croatian islands, but the structure of their accommodation is less favourable than that on the Central Dalmatian and South Dalmatian islands. On the North Dalmatian islands camps, private rooms and suites, have more than average share in the total accommodation while the share of the primary accommodation is lower than the island average. These differences follow from different historical and development factors. On the scattered and, in terms of traffic, poorly connected Zadar islands, for instance, tourism almost exclusively means the supply by the former private sector, which is why the tourist supply on these islands as a rule includes complementary facilities.

Table 4.1.2. Accommodation by island groups (1993)

	BEDS	HOTELS	CAMPS	PRIVATE ROOMS	HOLIDAY HOMES	OTHER
Kvarner islands	79,587	16,611	37,945	23,336	1,238	457
North Dalmatian islands	15,840	2,888	11,240	1,712	0	0
Central Dalmatian islands	28,245	13,352	11,218	3,138	192	345
South Dalmatian islands	5,633	5,083	550	0	0	0
Islands TOTAL	129,305	37,934	60,953	28,186	1,430	802
%						
Kvarner islands	61.5	43.8	62.3	82.8	86.6	57.0
North Dalmatian islands	12.3	7.6	18.4	6.1	0.0	0.0
Central Dalmatian islands	21.8	35.2	18.4	11.1	13.4	43.0
South Dalmatian islands	4.4	13.4	0.9	0.0	0.0	0.0
Islands TOTAL	100.0	100.0	100.0	100.0	100.0	100.0

%						
Kvarner islands	100.0	20.9	47.7	29.3	1.6	0.6
North Dalmatian islands	100.0	18.2	71.0	10.8	0.0	0.0
Central Dalmatian islands	100.0	47.3	39.7	11.1	0.7	1.2
South Dalmatian islands	100.0	90.2	9.8	0.0	0.0	0.0
Islands TOTAL	100.0	29.3	47.1	21.8	1.1	0.6

Source: Tourist stays at seaside resorts. National Statistics Institute. Zagreb 1994.

Most of the primary accommodation facilities on the island are hotels and tourist complexes (formerly B-category), adjusted to the needs of mass tourism of the 70's. Since such facilities have no heating and can thus only work in the summer, the available accommodation structure contributes to the greatest possible extent to the predominantly seasonal nature of our tourism.

As for the quality of hotels and tourist complexes on the islands, one should note that formal categories do not comply to the Western standards of catering industry categorisation. Many economic, technical and technological and functional parameters were neglected back during the construction stage, so that the primary tourist supply on the islands today is technologically inadequate and non-functional, while the policy principle according to which the supply has to be continuously and to the largest possible extent adjusted to the extremely unstable and changing demand is neglected.

Table 4.1.3. Indicators of Tourist Development - Islands and Croatia 1981-1993

	1981	1986	1988	1991	1993
ISLANDS					
Population (000)	112.5	118.0	120.0	123.0	126.0
Total commercial accommodation (000)	169	207	231	132	129
Tourist functional coefficient*	150	175	193	107	103
Overnight stays total (000)	12,503	15,088	15,377	1,420	2,521
- home	5,056	5,428	5,128	887	819
- foreign	7,447	9,660	10,249	533	1,702
Tourist population share in total population (%)**	30.4	35.0	35.1	3.2	5.1
- home	12.3	12.6	11.7	2.0	1.8
- foreign	18.1	22.4	23.4	1.2	3.3

CROATIA

Population (000)	4,601.5	4,692.9	4,729.4	4,784.3	4,839.1
Total commercial accommodation (000)	729	849	926	597	570
Tourist functional coefficient*	16	18	20	12	12
Overnight stays total (000)	56,574	68,216	67,295	10,158	12,908
- home	23,889	26,712	25,102	6,839	3,150
- foreign	32,684	41,505	42,192	3,319	9,758
Tourist population share in total population (%)**	3.4	4.0	3.9	0.6	0.7
- home	1.4	1.6	1.5	0.4	0.2
- foreign	1.9	2.4	2.4	0.2	0.6

* Total commercial accommodation per 100 inhabitants

** Total number of overnight stays/total number of days of stay of the local population

The tourist demand structure relating to islands differs from that relating to the mainland, but not substantially. The following may be noted:

1. The islands are visited more by tourists from the traditional tourist originating countries (Germany, Austria, Italy). These tourists mostly come individually, most often by car, they are more mobile and scattered than tourists from other nations.
2. The islands are visited by somewhat younger people, owing to the fact that the islands are harder to reach, the kind and quality of their accommodation, and specific motivation characteristic of younger people (leisure and fun).
3. On the islands there is a predominance of complementary facilities which are less expensive than hotels and more appealing to the working classes, while as a rule there are less retired persons than on the mainland.
4. Although both the coastal and island destinations are to be grouped among the places of markedly stationary tourism in terms of travelling, tourists stay slightly longer on the islands than at the coastal destinations. Besides, the share of tourists who spend their central vacations on the islands is slightly larger than the same share relating to the coast.

Although they are not primarily meant for commercial use and thus do not make the tourist supply of a destination, weekend apartments/houses are increasingly being let to visitors. According to the 1991 data, there were about 39.4 thousand weekend apartments/houses (43.1% of the total number of housing units on the islands), of which 62.1% are located on the Kvarner and North Dalmatian islands. It may be maintained that with an average area of about 70 m², auxiliary facilities (about 62 % of the apartments/houses have bathrooms and kitchens) and basic installations (about 72 % of the apartments/houses have running water, sewage and electricity), most of these facilities are well equipped for a possible accommodation of tourists.

Finally, it should be noted that in the last decade the Croatian islands have experienced an exceptionally dynamic development of yachting supply. According to the 1992 data¹, about 40% of the moorings were located on the islands. According to the same data the islands accounted for about 50% of the total yachting performance.

The development of the tourist trade in Croatia in the last fifteen years or so prior to the war shows that the island tourism (measured by the number of visitors and overnight stays) has increased more quickly than that on the coast.

Between 1976 and 1989 the number of tourist visits increased from 858 thousand to over 1,600 thousand (average growth rate of 5.00% annually), and the number of overnight stays increased from 8.5 to 14.5 million (average growth rate of 4.19% annually). In the same period the number of tourist visits in the coastal resorts (higher starting level) increased at an average annual rate of 2.75%, while the number of overnight stays increased at an average annual rate of 3.75%. In respect of the total island overnight stays distribution in 1989, as much as 69% were realised by foreign visitors, while the figure for the coast was 65%.

After the aggression against the Republic of Croatia in April 1991, tourist trade was drastically reduced nation-wide, in which the reduction was more marked on the islands than on the coast. On the other hand, the post-war tourist market revitalisation on the islands was slightly quicker than in most coastal resorts.

The most part of the island tourist trade performance in 1989 was realised on the Kvarner islands (more than 57% of visits and 53% of overnight stays). Between 1976 and 1989 these were the only islands where tourist trade grew above the average. On the North Dalmatian islands the increase was average, and on the Central Dalmatian and South Dalmatian islands it was below average. In respect of the accommodation, the overnight stays in 1993 show that the island tourism, as compared to the

¹ Source: Vesna Mikačić: *Otočni turizam Hrvatske*, Zagreb 1993.

one on the mainland, is much less oriented toward the primary accommodation, and much more toward private rooms.

Neither the island tourism nor the Croatian tourism at large were sufficiently encouraged by short term economic policy measures. The measures undertaken boiled down to subsidising transportation of organised tourist groups to the islands by regular ship and ferry lines or chartered vessels, and loans. According to the HBOR report, in 1996 loans were granted to island stock companies. The statistics on the tourist business performance in the first half of 1996, encourage the future organised work for enhancing service quality and attracting more and more tourists to visit our islands.

4.2. Agriculture

The sun, rocky ground and water scarcity have always marked the development of the island agriculture. Only 6% of the total surface area of the Croatian islands is arable land, and tillage requires much care and hard work. For this reason the most commonly found grounds are the anthropogenously terraced grounds, which between the two world wars were still vineyards and olive groves, and today they are mostly left untilled, a prize to the garrigue and Aleppo pine. Even so, the agricultural production is still dominated by vineyards and olive groves which thrive in spite of the drought. On dry karst pastures sheep are bred which yield high quality meat and milk for delicious cheese. Most other cultures, like citrus fruits, kiwi and vegetables, require water which is scarce. Water scarcity is a limitation to a more extensive wine, fruit and olive production.

According to the 1991 census, on the Croatian islands there are only 6,638 people who regularly engage in agriculture². Their share in the total population is 6.0%. Active farmers' share in the working contingent of islanders is 8.3%. The 1991 census gives one more information according to which another 8,720 persons engage in agriculture "occasionally", of which 3,499 are housewives. This number should be added to the number of active farmers in order to approximately establish the working contingent in agriculture.

Table 4.2.1. Agricultural island population

Islands according to counties	Agricultural population		% agricultural	% active farmers
	total	active		
Primorje- Gorski kotar	1, 617	732	4.3	4.8
Lika-Senj	1, 032	447	12.9	16.6
Zadar-Knin	665	347	4.5	10.2
Split-Dalmatia	2, 727	1, 472	8.8	12.4
Dubrovnik-Neretva	597	357	3.0	4.9
Croatian islands	6, 638	3, 355	6.0	8.3
Adriatic agricultural area			3.1	4.3
Croatia			9.1	13.0

Source: SLJHŽ - 1993.

Table 4.2.2. Sporadic island farming

Islands according to counties	Occasionally engage in farming		occasional farmers per 1 act.farmer
	total	housewives	
Primorje- Gorski kotar	2, 277	948	3.1
Lika-Senj	636	340	1.4
Zadar-Knin	1, 005	534	2.9

² Only island municipalities' population is included. The data on the population of islands within some coastal municipalities, e.g. the islands of the Šibenik County are not available..

Split-Dalmatia	2, 828	919	1.9
Dubrovnik-Neretva	1, 974	758	5.5
Croatian islands	8, 720	3, 499	2.6

Source: SLJHŽ- 1993.

At the recorded 10,831 island farms there work only 3,356 active farmers. This means that at about 7,500 farms (69.2%) there are no active farmers, and all work is done by "occasional" labour. In Croatia there come only 1.5 "occasionally engaged" per one active farmer, which indicates how much the island farming depends on the "non-farming" labour.

Table 4.2.3. Estates according to their total land area (ha)

Islands according to counties	Without land	up to 0.10	0.11-0.50	0.51-1.00	1.01-3.00	3.01-5.00	5.01-8.00	8.01-10.00	over 10.00
Primorje- Gorski kotar	3.5	7.5	22.6	17.0	24.6	8.7	5.7	2.4	8.0
Lika-Senj	2.6	3.2	19.7	17.1	33.6	6.8	5.8	2.9	8.3
Zadar-Knin	0.1	2.9	28.9	18.8	30.6	8.1	5.4	2.3	2.9
Split-Dalmatia	1.4	0.8	14.7	11.9	27.3	14.1	10.7	5.3	13.8
Dubrovnik-Neretva	-	2.9	26.0	23.1	31.1	8.2	4.4	1.7	2.6
Croatian islands	1.7	3.5	21.1	16.8	28.2	10.1	7.0	3.2	8.3

Source: SLJHŽ - 1993.

In 1991, 37,343 households were recorded on the islands, of which as many as 17,781 (47.6%) possess land. Most of the households, especially the autochthonous ones, work at least some of the land and engage in agricultural production. Of these households, according to the criteria of the national statistics, 10,831 are farms.

The Croatian agricultural structure is characterised by one of the smallest family estates in Europe, and the island estates are still substantially below the Croatian average. As many as 43.1% of island estates have less than 1 hectare and 71.3% have less than 3 hectares of land (19.8 i.e. 54.5% respectively nation-wide). The smallest are the estates on the Kvarner and Zadar islands where more than a half of all estates are smaller than 1 hectare.³ Small estates, often consisting of a number of separate small plots, determine all other farming features of the island family farming.

Table 4.2.4. Socio-economic structure of island family estates in %

Islands according to counties	Agricultural	Non-agricultural	Mixed	Without income
Primorje- Gorski kotar	4.0	87.1	6.9	2.0
Lika-Senj	19.8	62.6	16.5	1.1
Zadar-Knin	3.2	86.3	9.4	1.1
Split-Dalmatia	9.5	71.3	17.6	1.5
Dubrovnik-Neretva	2.4	88.8	8.0	0.8
Croatian islands	6.7	80.1	11.7	1.4

Source: SLJHŽ - 1993.

In households with estates, the number of "agricultural" ones i.e. the ones whose members are solely farmers is the smallest: only 6.7%. "Mixed" households-estates are somewhat more numerous (11.7%). These are the households with farmers and at least one active non-farming member. This means that on the islands there are only 18.4% estates with a professional farmer in their households. The remaining 80.1% of the estates have no farmers and all the farming is done by "occasionally"

³ The data on the arable farm land have not been published yet. According to our research on the Dalmatian islands, an average family farm consists of 25.1% arable land, 39.9% pastures, 33.9% forests and 1.1% of other non-productive land.

engaged labour. The group of households-estates "without income" make only 1.4% of the total number. They have neither active members nor regular income. As a rule, they are occupied by old and poor people.

The structure of island households differs from the mainland. There are half as much agricultural and mixed households, while there are much more non-agricultural households⁴. On islands, 18.4% of households have a farmer. In Croatia, 31.9% households have a farmer. As much as 91.8% of island households with an estate belong to the "mixed" category, because they support themselves from the income of the estate and from the employment outside of the estate. Such "dual" island households in which housewives, children and elderly also work, have proved successful. If, beside other activities, they engage in tourism, such households may provide a relatively good standard of living.

The share of agriculture in the island gross national income is merely 13.4%. On the Central Dalmatian islands its share rises from one fourth to one third, while on the Kvarner islands it is below the average. The importance of agriculture, however, is greater than suggested by such figures. Combined with non-agricultural activities it can provide a comfortable living for a mixed island household.

Island agricultural land⁵ measures 140,965 hectares. Of this total area karst pastures make up 117,986 hectares (83.7%), and arable land makes up 22,979 hectares (16.3%). Of the total arable land the larger part (59.1%) belongs to Dalmatian islands and the smaller part belongs to the Kvarner islands.

Table 4.2.5. Island agricultural land (1990) in hectares

Islands	Agricultural land	Arable land	Plough fields	Orchards	Vineyards	Meadows
Brač	26,952	3,512	563	2,369	580	-
Cres	26,575	1,606	941	534	45	86
Hvar	11,852	3,942	2,131	945	863	3
Korčula	12,043	5,000	1,786	2,009	1,201	4
Krk	27,102	4,662	2,721	1,095	537	309
Lastovo	1,331	479	178	183	118	-
Pag	22,841	2,023	1,265	19	544	195
Rab	6,315	1,099	689	193	217	-
Vis	5,953	656	152	61	443	-
Total	140,965	22,979	10,426	7,408	4,548	597

Source: SGH, 1991.

There is 0.24 hectares arable land per one islander, which is half as much as the Croatian average (0.43 ha). The share of arable land in the island agricultural land is merely 16.3%. Arable land makes up 63.2% of the total agricultural land of Croatia, and in the region of Slavonia as much as 90.1%.

Table 4.2.6. Agricultural land changes in the last twenty years (1971-1990)

Agricultural land	1970		1990		Difference
	hectare	%	hectare	%	
Total	143,572	-	140,965	-	-2,607
Arable total	27,943	100.0	22,979	100.0	-4,964

⁴ Figures for Croatia: agricultural households 14.7%, non-agricultural 66.7%, mixed 17.2% and without income 1.5%.

⁵ Agricultural land of the former 9 island municipalities making up 80% of the island territory. Data for other, smaller islands are not available.

Plough fields	10,479	37.5	10,426	45.3	-53
Orchards	8,412	30.1	7,408	32.2	-1,004
Vineyards	7,406	26.5	4,548	19.8	-2,858
Meadows	1,706	6.0	597	2.6	-1,706

Source: SGH 1971 and 1991.

Arable land on the islands has been dwindling ever since the breakdown of the wine-growing at the end of the last century. In the last twenty years it dwindled by 464 hectares (17.8%). On the average, 50.2 hectares of orchards and as much as 142.9 hectares of vineyards are abandoned each year.

The structure of island arable land differs from the mainland. Orchards make about one third of arable land (5% in Croatia; 10% in the Adriatic agricultural region). In 1970, vineyards made up 26.5% of arable land, in 1990 they made up 19.8% of arable land (3.6% in Croatia; 12.8% in the Adriatic region). The island agricultural structure is characterised by its large share of woody cultures (orchards and vineyards), and in this it differs not only from the Croatian average but also from the Adriatic coast. Climate and soil are surely the major reasons for such production orientation.

The share of vineyards in island arable land decreased in the last twenty years from 26.5% to 19.8%. Nevertheless, wine-growing is still the most important agricultural island activity. The share of the wine production on the islands in the total production of Croatia is 10 - 15%, which is relatively high. The soil and climate provide unique quality, and many island wines are labelled well-known wines with protected geographic indication. "Pošip" and "Maraština" from Korčula, "Faros" from Hvar, "Plavac" from Brač, "Vrbnička žlahtina" from Krk and others which have appeared recently, are unique in the Croatian wine supply. Fifteen island wine-cellars have a total capacity of 21,000 tons, of which 3,000 tons for grapes processing, finishing and bottle filling, 2,000 tons for partial finishing and about 16,000 tons for grape processing and wine storage. There are more and more private wine-cellars which mostly produce high quality wines.

In order to improve the wine production conditions in the Republic of Croatia, the following measures were taken:

- in the last two years registered grape producers were subsidised under the Agricultural Subsidies Act
- Wine Act has been passed
- Rules for the Production and Sale of Grapes and Grape Products and Wine are in preparation and will soon enter into force
- Institute for Wine-growing and Wine-making has been established to take care of the implementation of wine and plant material regulations and to supervise grape and wine production, wine and plant material sales and improvement of must sugar.

Second most important culture is olive which has found its natural environment on the islands and has eventually become a characteristic mark of their landscape. Today, there are about 2 million olive trees on the islands, which is one half of the Croatian total⁶. Once the main agricultural culture, olive was decimated at the end of the last century to make room for the then flourishing wine-growing. In this century olive growing was abandoned like other agricultural sectors. It was especially affected by the competition of other vegetable oils, obsolete processing which yielded low quality oil, and the import of less expensive olive oil from other Mediterranean countries.

⁶ In 1928/29, in Dalmatia alone olives were grown on 33,460 ha, with a total of 4,373,270 olive-trees, which was more than the whole Croatia has today.

It is only in the last twenty years or so that the things have begun to change for the better. Old olive-groves are being revived, small machinery is being introduced which can reach even the smallest plots, and modern oil refineries have been built which provide high quality oil processing. Today, there are 21 oil refineries on the islands, with a daily performance of 10 and more tons, as well as two larger olive canneries.

Olive growers are increasingly watering their olive-trees, and on many islands the so-called Cres model is spreading: sheep are enclosed in an olive-grove to weed and manure it so that two flies are killed with one blow. Olive growing is in many ways a proper island activity. Olive-tree is capable of regeneration, modern agricultural machinery guarantees good crops, oil can be inexpensively and efficiently stored for several years, and the work in an olive-grove is done in the autumn and winter when there are no tourists or other agricultural works. Besides, olive oil can harmonise edible vegetable oils balance in domestic consumption. On the other hand, most of the former olive-groves are now hard to reach because the old field lanes are falling in, becoming overgrown with maquis and impossible to pass for decades now.

The most important problems of the island and Croatian olive growing at large are:

- non-existence of an olive growers' association, which makes the marketing of olive oil and olives more difficult
- lacking funds for oil and equipment purchase
- insufficient knowledge of modern technology
- insufficient promotion of olives and olive oil consumption.

Although 1995 was a record year in crop, very little oil was purchased from the producers due to the tradition of self-sufficient production, inadequate processing technology and marketing system. Large quantities of oil are stored in bad, inadequate facilities and vessels of private producers, subject to becoming rancid.

Among the fruit trees, the most widespread are the fig, sour cherry and almond. Figs are being poorly exploited because there are no appropriate smaller facilities for drying and packaging figs. The *marasca* cherry is becoming rare on account of expensive harvesting and unfavourable export prices. Old almond groves are of no significant economic value. It is in the last ten years that new varieties have been planted which yield a better crop.

On the South and Central Dalmatian islands citrus fruits are grown, primarily tangerine and also lemon and orange. According to estimates there are about 12,000 fruit bearing tangerine trees, 9,000 orange trees and 8,000 lemon trees. There is also kiwi which, as a very promising culture, has been planted on larger areas and performing quite well. Further spreading of these economically very promising cultures will to the greatest extent depend on the availability of irrigation water and its price.

Vegetable is mostly produced for islanders' own needs, and this production is limited to small gardens around houses. During the summer season there is a great shortage of vegetable which is then supplied from the mainland.

Table 4.2.7. Island livestock in the last twenty years (1971-1991)

Stock	1971	1991
Horses	949	308
Cattle	1,475	451
Sheep	58,333	64,621

Pigs	3,050	833
Poultry	-	72,446

Source: National Statistics Institute, Studies and Analyses 79. 1993.

Island stock breeding includes sheep whose number has been increasing over the last twenty years. It is a common island sheep coming in different varieties, which is the only one that can survive and feed on the sparse karst pastures on the islands. It is kept for lamb and cheese. Owing to a particular composition of pastures, its meat and cheese are of exquisite quality and are easily sold. The structure of agricultural GDP clearly shows differences between the island and mainland agriculture in Croatia. Growing and mostly private grapes and fruit processing make 64.9% of the total island GDP in agriculture, while the farming and stock breeding make merely 33.4%. The share of the farming and stock breeding in the structure of the national agricultural GDP is 75.0%.

4.3. Fishing

The Chamber of Representatives of the Parliament of the Republic of Croatia, at its session held on 28 June 1996, passed the Act on the Amendment of the Act on Sea Fishing, which introduced a new category - small-scale fishing.

Small-scale fishing is such fishing in which Croatian citizens may engage using limited kinds and quantities of fishing tools like: drift nets, fish traps, fish spears, seine nets, mollusc gathering accessories and angling gear.

Fish and other sea organisms caught in small-scale fishing may solely be used for personal consumption i.e. as a food for one's own family.

In the last century 59 fish processing factories were built along the east coast of the Adriatic. Thirty-two of them were built on the islands, mostly on the open sea islands. These factories played an important role in the island life in the 19th and 20th centuries. They absorbed the surplus of agricultural population, encouraged fishing directly and agriculture indirectly. When they closed down jobs were gone as well as the pelagic fish market as one of the major vital supports of the islanders. The emigration from the most distant islands may primarily be assigned to the decrease in the industrial processing of the pelagic fish.

Table 4.3.1. Fish processing factories since 1884

ISLAND	PLACE	FACTORY	ESTABLISHED	CLOSED DOWN
VIS	KOMIŽA	Mardešić	1875	1940
VIS	KOMIŽA	Cia	1907	1940
VIS	KOMIŽA	Werchanek	1891	1923
VIS	KOMIŽA	Degrassi	1896	1921
VIS	KOMIŽA	Societa gen Francaise	1884	1940
VIS	KOMIŽA	Ribarska zadruza	1908	1923
VIS	KOMIŽA	Klink i Laurel	1909	1923
VIS	KOMIŽA	Neptun	1946	-
VIS	VIS	Degrassi	1908	1936
VIS	VIS	Dr. Mardešić	1908	1940
VIS	RUKAVAC	Mardešić	1891	1938
CRES	CRES	Societa gen Francaise	1896	1995
UNIJE	UNIJE	Arigoni	1921	1963
M. LOŠINJ	LOŠINJ	Kvarner	1921	1976
SILBA	SILBA	Degrassi	1907	1914
D. OTOK	SALI	Mardešić	1905	-
SUSAK	SUSAK	Mazzola	1939	1963
BRAČ	MILNA	F. Mardešić	1909	1911
BRAČ	MILNA	Mardešić co.	1909	-
BRAČ	POSTIRA	Kazolini	1924	1941

BRAČ	POSTIRA	Jadranka	1924	1940
BRAČ	POSTIRA	Sardina	1907	-
BRAČ	POSTIRA	Nimfa	1927	1940
HVAR	SUĆURAJ	Kazolini	1940	1970
KORČULA	KORČULA	Werchanek	1903	1930
	VELA LUKA	Jadranka	1898	-
PELJEŠAC	TRPANJ	Werchanek	1898	1970
LASTOVO	UBLI	Ampelea	1930	1970
ŠIPAN	ŠIPAN	Societa gen Francaise	1892	1937

Source: *Morsko ribarstvo* magazine (1950 -1989).

The once powerful island industry has come down to only five (5) factories today which work with great difficulties, employing about 1,000 people, and subsisting on direct government support. The significance of these factories for the islands they are located on is still great. The figures in Table 4.3.2. show what a blow closing down of any of the still operating factories would be, and how justified direct government support is.

Table 4.3.2. Fish processing island factories 1996

ISLAND	PLACE	FACTORY	% OF TOTAL LOCALLY EMPLOYED
DUGI OTOK	Sali	Mardešić	80
KORČULA	Vela Luka	Jadranka	25
VIS	Komiža	Neptun	50
BRAČ	Postira	Sardina	60
BRAČ	Milna	Zeus Faber	50

Source: Ministry of Agriculture and Forestry 1996.

Table 4.3.3. gives a list of fish farms on the islands, 17 in all, which is 68% of all fish farms in the Republic of Croatia.

Table 4.3.3. Island fish farms

PLACE	OWNER	FISH
Sv. Nikola cove- Olib	Babajka	seabass, gilthead
Island of Lukar - Pag	"Lukar", Novalja	seabass
Soline cove- Iž	PZ Iž	seabass, gilthead
Mala Lamljana cove -Ugljan	"Cenmark", Zadar	seabass, gilthead, charp snouted sparus
Mala Lamjana cove-Bisage	Vidović Nali	seabass, gilthead
Island of Košara	"Cenmar", Zadar	seabass, gilthead
Island of Maslinjak	"Slamka", Zadar	seabass
Island of Žižanj	"Limbortkon"	seabass
Island of Kablin - Pašman	"Martinović Fish"	seabass, gilthead
Island of Dumboka - Dugi otok	"Dumboka Mar", Sali	seabass, gilthead
Sajtija - Šolta	Novaković Pjero	seabass
Duboka cove - Hvar	"Aquaunion", Sućuraj	seabass
Sućuraj - Hvar	"Anda"	seabass
Maslinova cove - Brač	"Sardina", Postira	seabass
Bijavica cove - Mali Ston bay	"Dalmacijabilje", Dubrovnik	seabass, gilthead
Malo more - Mali Ston bay	"Plankton", Janjina	seabass
Drač - Mali Ston bay	"Seabass Junior", Drače	seabass

Source: Ministry of Agriculture and Forestry 1996.

4.4. Traffic

Sea links between the islands and the mainland are not nearly satisfying. Jadrolinija Rijeka, the largest Croatian passenger shipper accounts for almost 90% of regular coastal lines with its 29 local, ferry and

ship island-mainland lines, the Rijeka-Split-Dubrovnik along-the-coast line, and international lines between the Republic of Croatia and Italy.

Jadrolinija has 47 vessels (7 ships, 38 ferries and 2 cruisers) with a total capacity of 48,749 GT, 2,052 vehicles and almost 18,000 passenger seats. The fleet is old and slow. Ships are 28 years old on the average (the oldest of them was built 55 years ago), and a major portion of costs is covered from the state budget. Several lines are maintained by "Lošinjska plovidba-Brodarstvo" ("Marina" ferry), "Rapska plovidba" Rab (3 ferries), "Mediteranska plovidba" Korčula (two ferries and three ships) and the "Vrgada" co-operative (one ship).

Data on the passengers and vehicles carried in the record tourist year of 1987 and the same data for 1995 speak for themselves about the seasons' variations in sea transport and its dependence on the summer tourism.

Ferry and ship links between the islands and the mainland were somewhat better during the 1996 season. In 1995, Jadrolinija re-organised and modernised its booking office network increasing the number of agencies and booking offices many times over in both Croatia and Europe. In March 1996, the Government of the Republic of Croatia adopted a "Programme for the Reconstruction and Development of the Jadrolinija Passenger Fleet 1996-2000" according to which 22 ships will be purchased (5 new and 17 used ones).

Bus transportation is also underdeveloped. On some islands bus lines are maintained by mainland companies, and on some islands they are maintained by a local bus company. Some islands have no public bus transportation at all.

4.5. Shipbuilding

There are seven shipyards on the Croatian islands: "Inkobrod" - Korčula, "Radež"- Blato na Korčuli, "Greben" - Vela Luka, "Sumartin" - Brač, "Milna" - Brač, "Betina" - Murter, "Zadar" - Lamjane na Ugljanu, "Punat" - Krk, "Krk" - Krk, "Lošinj" - Mali Lošinj and "Cres" - Cres.

The shipyards on Korčula specialised in supplying services for large shipyards, and they manufacture rescue and deck equipment. Beside such activity, "Greben" from Vela Luka is an established builder of smaller fibreglass vessels, fishing boats, tourist and leisure boats, as well as special vessels for the navy and maritime police. These shipyards are increasing their exports.

Other island shipyards mostly engage in maintenance, they seldom engage in building smaller vessels ("Punat"). Although these shipyards are small, they make an important segment of a total economy of their communities. They employ a total of about 1,100 people and are mostly privatised. Their annual turnover is 40-50 million USD.

The shape of the island shipyards varies from satisfying to very poor. Those which are tied in business with large national shipyards, as is the case with all shipyards on the island of Korčula, needs share the problems of the big shipyards. In shipyards oriented toward maintenance and tourist services the situation looks much brighter. Such shipyards are "Punat", "Lošinj" and "Cres". "Inkobrod" Korčula and "Zadar" Lamjana/Ugljan have it especially bad. Both shipyards are in deep crisis on account of lacking commissions and leaving skilled labour. In 1995, the Government of the Republic of Croatia took measures to help "Inkobrod" to financially bridge its difficulties (claims toward the "3.Maj" major shipyard were covered by the stocks of the Croatian Privatisation Fund cashed in and used as state budget funds). Unfortunately, the shipyard did not undertake other measures needed, so today the

situation is equally bad as it was before the government intervention. After the financial rehabilitation of "Radež", in which the Government of the Republic of Croatia covered the debt of major shipyards, this shipyard is doing relatively well. The claims toward "Greben" are just being covered by the stocks of the Croatian Privatisation Fund, which will substantially improve the finances of this otherwise successful shipyard.

4.6. Other industry

Beside shipbuilding major industrial branches on the islands are the textiles, plastics and petrochemical industries.

The most important in terms of islander employment are the textile plants:

- Trikop d.d. Blato, Korčula, ready made clothes with a capacity of 350,000 to 400,000 units a year, employing 239 people, mostly women
- Vrbenka d.d. Tvornica netkanih tekstila, Vrbnik, with a capacity of 7,000 t/per year of non-woven fabric, employing 112 people
- Army clothes supplier on the island of Vis which employs about 60 people.

Plastics processing programmes are also important:

- Diokom - holding d.d. Split, with plants in Starigrad, Hvar, manufacturing buttons and employing about 90 people
- toy and balls manufacturers on the island of Šolta employing about 90 people
- Bračplastika d.d. Brač, manufacturing processed plastics items for the pharmaceutical industry with a capacity of 1,000 t/per year and employing 120 people.

For further development, the petrochemical complex of INA-Petrokemija at Omišalj on the island of Krk is of special importance with its production of about 55,000 t/per year of low density polyethylene, 160,000 t/per year of VCM and about 150,000 t/per year of ethylendichloride. This industry employs just about 420 people but it enables a comprehensive polymer processing and is thus important for the possible creation of jobs. Important are also Tvornica električnih uređaja /Electrical equipment factory/ Vela Luka/Korčula, employing 50 people, and "Pliva - Nerežišće" on Brač.

4.7. Mining

On the islands the following mineral raw materials are being exploited:

- **Architectural-building stone** on Brač, Korčula and Hvar where stone industry has a 2,000 years long tradition. The stone from Brač was used to build Diokletian's Palace in Split and the White House in Washington. The stone from Korčula, Badija and Vrnik were used to build a number of buildings of the cultural heritage of Dubrovnik. On Brač, two companies and four craftsmen engage in this industry, with stone being illegally mined on 20 more localities. Some 400 people are employed in quarries and stone processing on Brač. Supplies allow for further expansion and employment for 600-700 people. Possibilities of exploitation and processing of architectural-building stone on the islands of Hvar and Korčula, though not on such scale as on Brač, still could provide jobs for 50-70 people. Once renowned for their quarries, the islands of Vrnik, Badija and Kamenjak are specially protected and no extensive stone exploitation is allowed on them.
- **Sea salt** is produced at the island of Pag and at Ston. The Pag saltworks employ 130 people and produce 35-40% of total table salt consumed in Croatia.
- **Engineering-construction stone** is exploited on many islands and used for housebuilding and tourist complex and local roads construction. The performance of these quarries is well adjusted to the needs of the islands. Since the island of Krk is linked to the mainland by means of a bridge, the

engineering-construction stone from this island has a chance of wider marketing. The marketing chances of these raw materials will be clearer when the research in the Dinara mountain range area i.e. under the sea is finished.

No deposits of oil and/or gas have been found on the Croatian islands so far. Research work is underway and the final conclusion will have to wait till its done. Once exploited and still available large deposits of silica sand on the island of Vis are still waiting for investors to invest in further exploitation.

5. INFRASTRUCTURE

5.1. Water supply and sewage

The islands are supplied with water from regional waterworks with wells on the mainland by means of underwater pipelines, from local waterworks drawing water from island wells, or the water is transported by special tank ships. All larger islands have their own public watermanagement companies.

Cres and Lošinj are the only islands with abundant wells of their own - the Vrana lake on Cres. Their waterworks supply about 90% of the permanent population. Krk is supplied from its own natural and artificial wells and suffers shortages, while Rab and Pag have their own wells and are connected to the regional mainland waterworks.

The island of Pašman is connected to the regional waterworks, but the water has only been brought as far as to the settlement of Tkon. An underwater pipeline was laid all the way to Ugljan, but there is still no pumping station. South-eastern part of Dugi otok is supplied with water from the Žman polje which overflows in the winter. Other islands depend on tank ships.

The water supply system of Omiš-Brač-Hvar-Vis-Šolta has only been partially built and supplies water to the settlements on Brač and a part of Hvar and Šolta. Eastern part of Hvar is supplied by an underwater pipeline from the regional waterworks of the Makarska region, also using some of its own sources.

The water supply system of Neretva-Pelješac-Korčula-Lastovo-Mljet supplies water only to Pelješac and a part of the settlements on Korčula where, in the interior of the island, local wells are also used, while Lastovo and Mljet are waiting to be connected. Currently, Lastovo has its own dilapidated brackish water waterworks, and on Mljet water brought by tank ships is being distributed all over the island in tank trucks.

Almost all small islands and many settlements in the interior of larger islands (northern part of Cres, north-western part of Dugi otok, Mljet) depend on the tank ships or tank trucks. Water is mostly sold on the spot and pumped into reservoirs or tank trucks to be distributed throughout the island.

Water supply systems which brought water to the islands from the mainland, effected an increase in water consumption and thus in the quantity of waste water. The necessary parallel sewage systems in most cases have not been built so that waste water is disposed of in the same manner as in the times when its quantity was much lower. The number of polluters, however, is increasing. The biggest are fish processing plants and oil works, wine-cellars and smaller maintenance shipyards. In oil works and fish processing plants fat presents a special problem. It should be separated and brought down to an acceptable level for it to be carried to the sea through the sewage system. At present, no such thing

is happening. The dumps of the island settlements, inadequately located and poorly managed, also contribute to the pollution of the underground and thus of the coastal sea.

The sea receives all waste water of the island coast settlements. Most of the permanent settlements have no sewage, and the waste water of tourist facilities is regularly disposed of without filtration. Such sewage systems consist of a central settling basin and a short outlet into the sea. Examples of treatment in biological facilities are rare, and the outcome of such treatment is always doubtful on account of poor maintenance and additional tourist complex construction without the accompanying sewage enhancement.

The number of potential sources of pollution created by the construction of marinas is increasing. The danger of oil spills, marine colour pollution, pollution by yacht chemical water closet contents, used motor oil and sewage water pollution (marinas are located outside of settlements and thus need their own sewage systems) is growing. Neither liquid nor solid waste from the marinas is disposed of in a proper manner, and supervision is poor.

The sea around South Dalmatian islands gets deep already a short distance from the shore. It is for this reason that the system for waste water filtration and construction of underwater facilities is more simple and safer than is the case with other islands. This largely applies to central and northern Adriatic islands (Brač, Šolta, Hvar, Krk, Rab and Cres) as well where the sea is less deep but features strong channel currents and good exchange of sea masses. Strong channel currents and open sea also surround the northern Adriatic islands. On the other hand, the sea around the Zadar and Šibenik islands is shallow and requires a higher level of filtration performance and longer sea outlets. Investment in the adequate equipment on such islands are larger than investments on other islands.

The complexity of the sewage facilities depends on the depth of the surrounding sea and its currents. Simple waste water disposal includes the construction of main coast sewers, mechanical waste water treatment facilities and underwater outlets. Complex waste water disposal is indicated in settlements which are located at the end of coves deeply indented in the island coast, like Vela Luka, Stari Grad on Hvar, Milna on Brač, Pag, Klimno on Krk and others. Waste water disposal in such coves is much more expensive, which regularly causes construction postponement, while smaller facilities do get built eventually.

5.2. Solid waste disposal

All island settlements have their own but mostly uncontrolled dumps. In most cases they are located near the settlements, even in dense resident areas, and all kinds of waste are dumped there, even the hazardous waste. In most cases companies have their own industrial dumps (often for hazardous waste). Larger islands have their own public companies which engage in collecting, transporting and disposing of solid waste. In such case communal waste disposal includes collecting, transporting and disposing of waste.

Only communal waste is collected in an organised manner on the islands, and even this is not the case everywhere and always, because many settlements and households are not included in the system. Other waste - industrial and special waste - is being collected in a haphazard, non-rational and environmentally harmful manner.

Data on solid waste disposal have been obtained for Cres, Lošinj, Krk and Rab by a survey involving local communal organisations, industrial companies and other major agencies engaging in waste disposal. The survey took place in the autumn of 1994.

Table 5.2.1. Solid waste composition on the Kvarner islands in 1993 (tons per year)

Area	Communal waste	Industrial waste	Hospital waste	Waste oil	Ship ballast	Animal waste	Special waste	Waste water sludge	Bulky refuse	Rubble	Total
Cres-Lošinj	4,248	3,693	45	42	900	47	480	420	241	3,615	13,731
Krk	6,091	2,178	182	280	900	410	818	730	350	5,240	17,179
Rab	3,201	-	73	29	45	46	231	320	189	2,840	6,974

Source: Waste Disposal Systems in the Kvarner and Istria areas - final study, DUZO, February 1996.

On all locations surface waters are polluted in contact with waste, they permeate the ground and in terms of hydrogeology are a danger to the Kvarner islands environment. Although there are no data on the remaining islands, it may well be assumed that the karst underground is polluted there, too.

5.3 Electricity

The system of power supply on the islands may be considered satisfactory, because in the last five years great improvements have been made. Sometime in the future all islands will be supplied with electricity in a satisfactory manner. All necessary underwater cables have been laid according to the principle of double supply. The National Electric Utility approached the island supply systematically fifteen years ago, by means of two projects for linking the islands to the mainland network on two voltage levels. The "110kV Island Connection" project linked our largest islands into a supply system. The building of the northern arm started in 1980, and of the southern in 1986. The latter has been finished, while the northern arm is just being finished. In 1994 the Government supported the completion of the aforementioned projects and accepted the study by the National Electric Utility "Underwater Power Cable Network Development for the Croatian Adriatic islands 1994-2000 (2050)".

The "35 kV - Adriatic Islands" project to link all major islands lacking such link to the mainland 35 kV power network was started in the beginning of 1995. Until then 27 110-35kV transformer stations and approximately 420 km 35kV-surface cables, as well as almost 1,000 10/0.4kV-transformer stations and 1,725 km 10kV-surface cables, were built i.e. installed on 50 Adriatic islands with power. Besides, about 100 km of 35kV-underwater cable and somewhat less 35kV-underground and surface cables were added to the total.

Some of "35kV - Adriatic Islands" project facilities have already been built and in use, while the project as a whole will be finished by the end of 1996. This will enable development oriented power supply to the Croatian islands in the next 20-30 years.

5.4. Telecommunications

The system of telecommunications is satisfactory, too. After a long period of telecommunications lethargy the network has developed in the last three years so as to almost completely cover the islands. The quality of life on all, especially small islands, was thus considerably raised, and one of the main requirements of the further development of island tourism was met. On a number of small islands there are more main telephone connections (MTC) than permanent inhabitants.

Table 5.4.1. Telephone exchange capacity and main telephone connection (MTC) on the islands of mainland-island counties in 1990 and 1995

County	31.12.1990		31.12.1995	
	Capacity	MTC	Capacity	MTC
Primorje-Gorski kotar	8,524	6,341	20,678	15 616
Lika-Senja	1,160	1,150	6,076	4,500
Zadar-Knin	3,198	3,078	7,664	6,205

Šibenik	3,268	2,213	5,504	3,941
Split -Dalmatia	4,200	3,502	14,126	10,489
Dubrovnik - Neretva	7,358	6,198	10,389	8,648

Source: HPT data, April 1996

Commutator equipment and transformation channels, which means the quality of island telecommunications network, vary considerably. While on some islands there are still the old ETC 960-type telephone exchanges, on others the users are connected to digital distant RRS which make the most modern services of digital telephone exchanges available to them.

Something similar applies to the links. On some islands there are RR-links and such networks are less reliable than the networks on the islands where the links use optical fibres. The highest degree of telecommunications development has been reached on the islands of the Primorje-Gorski kotar County (digital AXE telephone exchange on the island of Krk). The islands have been linked to "Jadranko" optical fibre cable transmission system. Telephone network density on these islands is therefore two to three times the Croatian average which is 28 MTC per 100 inhabitants

The islands also differ in the reception of TV-signal. Settlements on the open sea side of most islands do not have adequate relay stations so they cannot watch all channels of the Croatian Television, though they may watch all Italian channels.

5.5. Roads, seaports and airports

Island roads cannot be considered satisfactory. They were mostly built along the old routes inadequate for motor traffic, narrow and poorly maintained. The record of the National Roads Authority, showing that there are about 27,000 km of categorised and almost as much non-categorised i.e. unregistered roads, is reflected on the islands, too.

Table 5.5.1. Registered local and regional island roads (km)

Lošinj	35
Cres	122
Krk	185
Rab	46
Pag	123
Silba	1
Premuda	2
Olib	1
Ist	3
Molat	10
Vir	4
Sestrunj	3
Pašman	24
Ugljan	50
Dugi otok	61
Rava	3
Iž	8
Murter	12
Čiovo	22
Šolta	26
Brač	160
Hvar	130
Vis	52
Biševo	2

Korčula	129
Lastovo	32
Mljet	53
Šipan	5
Pelješac	145
Ukupno	1 449

Source: National Roads Authority

Momentarily, the following roads on the islands are under construction, being repaired or just finished:

- 45 km long R-2917/1 regional road on Dugi otok is being provided with traffic signs;
- 3.3 km long RC-2960 regional road on Hvar from Milna to Hvar is about to be finished;
- on Pag, a 11.5 km long section of the MC-29 main road from Dinjiška to the town of Pag has just been finished;
- on Šipan, a 4.6 km long local LC-38886 road between Suđurđ and the port of Šipan is being repaired.

Together with the local and regional island roads one should also mention thousands of kilometres of field lanes and paths which once made dense networks on all inhabited and some uninhabited but used islands. They were built and maintained in order to enable access over the rocky ground even to the most distant plots. After the islanders left and agriculture was neglected these lanes and paths partly fell in and became overgrown with maquis, so that a good portion of the island terraces and other agricultural land is practically inaccessible.

The list of ferry and ship ports and marinas is given in Table 5.5.2.

Table 5.5.2. Ferry and ship ports, and marinas

ISLAND	PORT	FERRY LINES	SHIP LINES	MARINAS
Krk	Šilo (Stipanja)			
	Baška	Baška-Lopar (Rab)		
	Valbiska	Valbiska-Merag		Punat
Cres	Merag	Merag-Valbiska		
	Porozina	Porozina-Brestova Porozina-Rijeka		Cres
Lošinj	Mali Lošinj	Pula-M.Lošinj-Silba - -Zadar M. Lošinj- Silba- Zadar	M.Lošinj-Srakane Vele- -Unije-Ilovik-Susak- -M.Lošinj; M.Lošinj-Susak-Unije- -Martinšćica-Cres-Rijeka;	Mali Lošinj
Unije	Unije		see Mali Lošinj	
Susak	Dragoča (Susak)		see Mali Lošinj	
Ilovik	Ilovik		Ilovik-Premuda-Silba-Olib- -Zadar; see Mali Lošinj	
Rab	Rab (Mišnjak)	Mišnjak - Jablanac; Rijeka-Rab-Brbinj (DugiOtok)-Zadar- Split-StariGrad-Hvar- Vis-Korčula-Sobra- -Dubrovnik		Rab
	Lopar	Lopar-Baška		Supetarska Draga
Pag	Žigljen	Žigljen - Prizna		
Olib	Olib		Olib-Silba-Premuda-Ist- -Zapuntel-Brgulje-Molat- -Zverinac-Rivanj-Zadar; M.Lošinj- Premuda-Silba-	

			-Olib-Zapuntel-Ist-Zadar; Ilovik-Premuda-Silba-Olib- -Zadar;	
Silba	Silba		see Olib	
Premuda	Krijal		see Olib	
Ist	Ist		see Olib	
Molat	Zapuntel		see Olib	
	Brguljski zaljev		Ist-Molat-Sestrunj-Zadar; see Olib	
	Molat		see Brguljski zaljev	
Sestrunj	Hrvatina		Zadar-Rivanj-Sestrunj- Zverinac- Božava-Molat- -Brgulje- Zaputnel- Ist	
Rivanj	Rivanj		see Sestrunj; vidi Olib	
Ugljan	Preko	Preko-Zadar		
Pašman	Tkon	Tkon-Biograd		
Zverinac	Zverinac		see Sestrunj and Olib	
Iž Veil			Zadar-Iž Mali-Iž Veli- -Brbinj-Savar-M.Rava- Rava	Iž
Rava			see Iž	
Dugi Otok	Brbinj	Zadar-Brbinj; see Rab		
	Zaglav	Zaglav-Sali- Zadar		
	Sali	Zaglav-Sali- Zadar		
Murter				Betina Jezera
Prvić	Prvić Luka		Šibenik-Zlarin-Prvić Luka—Šepurine-Vodice	
	Šepurine		see PrvićLuka	
Zlarin	Zlarin		see Prvić	
Kaprije	Kaprije		Šibenik-Zlarin-Kaprije- -Žirje	
Krapanj	Krapanj		Krapanj-Brodarica	
Žut				Žut
Piškerica				Piškerica
Žirje	Mikavica		see Kaprije	
Drvenik Mali	Vela Rina		Split-Trogir-Drvenik Mali- -Drvenik Veli	
Drvenik Veli	Drvenik		see Drvenik Mali	
Šolta	Rogač	Rogač-Split	Rogač-Split (catamaran)	
Brač	Supetar	Supetar-Split		
	Sumartin	Sumartin-Makarska		
	Bol		Split-Bol-Jelsa (catamaran)	
				Milna
Hvar	Vira (Pribinja)	Vis-Hvar-Split; see Rab		
	Stari Grad	Stari Grad-Split; see Rab		
				Vrboska
	Jelsa		see Bol	
	Sućuraj	Sućuraj-Drvenik		
				Palmižana
Vis	Vis	Vis-Hvar-Split; see Rab		
Biševo	Biševska Luka		Komiža - Biševo	
Pelješac	Trpanj	Trpanj-Ploče		
	Orebić	Orebić-Dominče (Korčula)		
Korčula	Korčula	see Orebić		Korčula
	Vela Luka	Lastovo-Vela Luka- -Hvar-Split		
Lastovo	Ubli	see Vela Luka		
Mljet	Sobra	Dubrovnik-Sobra; see Rab		
Šipán	Luka Šipanska		Luka Šipanska- Suđurđ- -Lopud-Koločep-Dubrovnik	

Lopud	Lopud		see Šipan	
Koločep	Donje Čelo		see Šipan	

Source: Adriatic Nautical Guide, Leksikografski zavod "Miroslav Krleža"

International airports are located on the islands of Krk, Lošinj and Brač. The Krk Airport was built for the needs of the city of Rijeka and is heavily oversized in comparison to the island itself, while the Lošinj and Brač Airports accommodate smaller piston engine planes, and although they have not been completely finished yet, they can meet the respective island need. Moreover, an air-field has been built for small aircraft on the island of Unije this year. No hydroplane transportation is available, and emergency helicopters use improvised heliports.

Judging by the project activities, other islands will not have to wait long for their own airports. The Ministry of Maritime Affairs, Traffic and Communications is preparing documentation (choosing location, preliminary design, estimate of costs and environmental study) for building regional island airports on Hvar and Korčula and location studies for 800 m long airfields on Vis and Lastovo.

5.6. Petrol and gas supply

The network of INATrgovina-petrol stations includes 26 petrol stations on 13 islands. Most of them are located on the shore, which allows for supplying both ships and road vehicles. Of larger islands, only Mljet has no petrol station yet. On the Adriatic coast and islands INATrgovina has 44 petrol stations in all, 6 storage facilities and a gas bottling shop, as well as 6 larger and smaller plane service storage facilities. Island petrol stations are being supplied by tank ships and tank trucks from Rijeka, Zadar, Gaženica, Šibenik, Solin, Rogotin and Dubrovnik.

All stations sell unleaded petrol 91, and at least one station on every island also sells unleaded petrol 95. Limited space at some stations and zoning requirements do not allow for the building of additional storage tanks for one more fuel type, so facilities will have to be rearranged. The building of double purpose petrol stations is made difficult by the limited accommodation capacity on the shore, complicated procedure for obtaining concession to maritime property and building of access road and mooring pier for ships.

Liquefied petrol gas retailers cover all inhabited islands. Gas is sold in 10 and 35 kg bottles at the INA petrol stations and through retailers - 75 locations in all. The supply is irregular on account of poor organisation of transportation. At present, liquid motor fuel gas is not sold on the islands.

VI. HEALTH CARE

On the islands of Cres, Lošinj, Krk, Rab, Pag, Brač, Hvar and Korčula, with about 8,000 inhabitants each, health care services are provided by medical centres. They are, as a rule, equipped for both diagnostics and therapeutics. There is one centrally located medical centre, with a network of local health stations, which cover between 2,000 and 2,500 inhabitants each. In such circumstances the

role of a family doctor is performed by teams of general practitioners. They visit other smaller places on the island on certain days and at certain times and provide primary health care. In 1994 there were 684 medical personnel employed in island medical centres and other medical institutions

On certain days and at certain hours a doctor (the same one as a rule) visits places on small islands and offers medical services, checks elderly patients and prescribes therapy. This is the way health care is organised on the islands around Zadar and Šibenik, on which there are no medical centres.

On bigger islands specialised consultations are given by specialised doctors who reside on the island or those who come to the island from time to time. Inhabitants of small islands have to go to bigger islands or to medical institutions in coastal towns for specialised consultations.

Islanders can obtain the most complex diagnostical and therapeutical examinations, treatments and consultations in bigger towns on the mainland.

On islands emergencies are, as a rule, treated in medical centres within primary health care or in local health stations, which have medical personnel on call.

A doctor on an island faces and has to solve health and other problems which are not faced by doctors in a city because they are solved by other services or persons. His work includes traumas, insults, births, cases of drowning, complete diagnostical procedures and the synthesis of results collected on the island. Work in the island health care is therefore very demanding, both physically and morally. A doctor must be able to understand his patient, he must adopt quick clinical decisions and know medical techniques and therapeutical procedures which he himself performs. Other members of the team of an island general practitioner must have similar characteristics.

Health care services are used more on islands than on the mainland. It is due to the installed facilities and habits formed by historical, psychological and demographic factors. In spite of, or perhaps due to, medical and human resources which are above average in primary health care, island health care services are more economical than those on the mainland. The rate of absence from work is lower than the national average. On the average, treatment is longer in the island hospitals than on the mainland, except for the hospital on the island of Brač. It is partly due to the average age of island inhabitants, which results in a greater need for hospital treatment. The number of treatments per 1,000 health insurance beneficiaries is lower than the national average, except for the islands of Brač, Lastovo and Vis. The number of prescription drugs per 1,000 health insurance beneficiaries is higher, and the spectrum of prescribed drugs is large.

The specific characteristics of island population, its health condition and needs show that relatively low costs are accompanied by great efforts of island medical personnel. There are several details typical of the islands: small number of beneficiaries, small and dispersed settlements remote from the island centre, difficult traffic conditions, age structure of the population and its specific additional needs, as well as a large number of tourists coming in the summer and their specific morbidity rate. The health care needs of the population are not only greater but also special in terms of their structure and appearance. The profile of doctors and other medical personnel working with this population is also specific.

There are no rules as to the provision of health care on the islands. The sequence of procedures in the diagnosis, therapy and rehabilitation of certain diseases, quite usual on the mainland, can be quite different on the islands; standards established and accepted on the mainland often have to be modified to be applied on the islands. The standard requirement applied on the mainland, that one doctor has to cover 50,000 inhabitants in sanitary and epidemiological care obviously has to be changed if applied to an archipelago where the most densely populated island has less than 20,000

inhabitants. The same goes for the standard used on the mainland that a general practitioner can successfully cover 1,700 users: on the islands with 5,000 to 20,000 inhabitants (Krk, Korčula, Brač, etc.) one doctor covers up to 1,000 patients and on the islands with 2,500 to 5,000 inhabitants (Cres, Dugi otok, Vis, Pašman, Murter) only 700.

Medical emergencies have been a great problem for the organisation of health care on the islands. Transport of patients to larger medical centres on the mainland takes a long time and is uncomfortable and often impossible in bad weather. A special problem is when a seriously ill or injured person must be accompanied by a doctor; in such case the only doctor on the island must be absent for the whole day. The transport of emergencies on the islands is not standardised and is organised differently from island to island. Very often helicopters of the Ministry of Defence or speedboats of the Ministry of the Interior are used. Sometimes small private boats are hired. The problem is the more serious the greater the distance of the island from a bigger town and the smaller the number of its inhabitants are.

As a rule there are too few ambulances which could transport patients to a medical centre or to a ship linking the island to the mainland. Some islands have never even had an ambulance. Beside this, islands do not have cars for home calls and visiting-nurse service.

A genuine problem in medical and human terms on bigger islands is the transport and treatment of patients with chronic renal insufficiency, who need a dialysis two or three times a week. For the time being this is carried out only on the islands of Brač and Hvar.

When the needs for health care on islands are being assessed, two basic population groups should be taken into account:

- a) resident population
- b) tourists.

Health needs of the first group have been specified above. As for tourists, there are two categories as to their health needs:

- tourists coming in the summer, who have a specific pathology (injuries, acute diseases of the upper respiratory apparatus, diarrhoea, traffic accidents, drowning, sunburn, sunstroke, allergies etc.). They are, as a rule, healthy people. According to the experience, 20-30% of these tourists experience some health problems during their stay on the islands; 5-6% of them request medical assistance and 1% a hospital treatment. Per 3,000 summer tourists 20-30 medical interventions daily are expected.
- Tourists coming off season are usually elderly people, chronic patients from Croatia and abroad, who require more intensive medical care and assistance and therefore a higher standard of medical care services (health tourism). Except for some pioneer attempts on the islands of Mali Lošinj and Hvar, one can say that the issue of health tourism on the Croatian islands has not been sufficiently studied or defined.

VII. EDUCATION

In the school year of 1995/96 there were 12.337 primary school pupils on the Croatian islands (official figures of the Ministry of Education and Sports). This figure includes displaced children. Except for Dubašnica on the island of Krk, where they make up separate classes (140 pupils in eight grades), displaced children have been integrated into classes with resident pupils. According to the number of pupils, the islands can be divided into four groups.

The first group are islands with one or more primary schools and a relatively large number of pupils on the island (between 500 and 2,000). These are mostly bigger islands, islands close to the mainland or connected with it by a bridge. The following islands belong to the first group:

- ◆ **Krk 1,959 pupils;** primary schools or regional classes: Krk 446; Baška 124; Dobrinj 61; Dubašnica 418 (268 + 140 displaced children); Omišalj 449; Punat 189; Vrbnik 171; Vrh 101;
- ◆ **Korčula 1,952 pupils;** primary schools or regional classes: Korčula 736; Lumbarda 61; Račišće 26; Žrnovo 135; 10; Vela Luka 430; Smokvica 132; Čara 32; Blato 390;
- ◆ **Brač 1,568 pupils;** primary schools or regional classes: Bol 221; Pučišća 212; Gornji Humac 13; Pražnica: 22; Postira 233; Selca 175; Sumartin 14; Supetar 504; Nerežišća 53; Sutivan 37; Milna 84;
- ◆ **Hvar 1,157 pupils;** primary schools or regional classes: Hvar 424; Jelsa 318; Sveta Nedjelja 5; Svirče 24; Vrboska 24; Zastrazišće 6; Sućuraj 46; Bogomolje 7; Starigrad 248; Dol 22; Vrbanj 33;
- ◆ **Lošinj 987 pupils;** primary schools or regional classes: Mali Lošinj 901; Nerezine 43; Veli Lošinj 43;
- ◆ **Rab 965 pupils;** primary schools or regional classes: Rab 665; Banjol 38; Barbat 61; Kapor 51; Lopar 67; Mundanije 16; Supetarska Draga 67;
- ◆ **Pag 721 pupils;** primary schools or regional classes: Pag 361; Dinjiška 19; Poveljana 34; Vlašići 13; Novalja 304; Kolan 39; Lun 8; Metajna 9; Zubovići 4;
- ◆ **Ugljan 543 pupils;** primary schools or regional classes: Preko 343; Kali 72; Kukljica 42; Lukoran 15; Poljana 23; Sutomišćica 10; Ugljan 38;
- ◆ **Murter 524 pupils;** primary schools or regional classes: Murter 227; Betina 43; Tisno 209; Jezera 45.

The total number of pupils on the islands from the first group: **10,446** or **84.7 %**.

The second group covers the islands which were densely populated in the past and which are relatively big, but have a disproportionately small number of pupils - between 100 and 350 - in comparison with the 1950s, when the last big exodus started:

- **Vis 354 pupils;** primary schools: Vis 197; Komiža 157;
- **Cres 310 pupils;** primary school and regional classes: Cres 296; Martinšćica 6; Orlec 5; Valun 3;
- **Čiovo 253 pupils;** regional classes: Okrug Gornji 157; Slatine 96;
- **Pašman 250 pupils;** primary school and regional classes: Tkon 25; Nevidane 160; Dobropoljana 34; Mrljane 31;
- **Dugi otok 140 pupils;** primary school and regional classes: Božava 13; Brbinj 4; Sali 123;
- **Šolta 105 pupils;** primary school: Grohote 105;
- **Lastovo 94 pupils;** primary school 94;
- **Mljet 85 pupils;** primary school and regional classes: Babino Polje 76; Govedari 9.

The total number of pupils on the islands of the second group: **1,591** or **12.9 %**.

The third group are smaller islands with a very small number of pupils (between 10 and 40), where school is organized in regional classes of larger schools from the mainland or the neighbouring islands. These are: **Vir (43 pupils), Iž (32), Šipan (24), Lopud (20), Silba (30), Prvić (23), Ist (12), Olib (14), Vrgada (14), Krapanj (14), Susak (9), Unije (44), Ilovik (5), Koločep (6), Zlarin (10).**

The total number of pupils on the islands of the third group: **300** or **2.3 %**.

Islands with school buildings but without pupils make **the fourth group: Biševo, Jakljan, Kaprije, Mali Drvenik, Molat** (three villages: **Bargulje, Molat and Zapuntel**), **Ošljak, Premuda, Rava, Rivanj, Sestrunj, Veliki Drvenik, Vele Srakane, Zverinac and Žirje**.

In the school year of 1995/96, there were **12,337 pupils** on the Croatian islands.

The number of deserted school buildings on the islands is increasing. On large or relatively large islands with a well-developed road network school is centralised in one or two schools in bigger places; children from smaller places come there on their own or by organized transportation, especially pupils from the 5th to the 8th grades. It is difficult to give a precise list of deserted school buildings (or, to put it more precisely, school buildings which are being used for another purpose). There are no official figures and the legal and property status of many school buildings is not defined (former church facilities, buildings belonging to co-operatives, usurped private buildings etc.). The following list specifies places with school buildings where classes used to be held. The figure in the brackets represents the number of their inhabitants according to 1991 census.

First island group:

Brač: Blaca (not in the 1991 census), Bobovišća (62), Dol (208), Donji Humac (210), Dračevica (103), Ložišća (181), Mirca (298), Murvica (29), Novo Selo (205), Povelja (393), Spliska (252), Škrip (206); **Hvar:** Brusje (241), Gdinj (200), Pitve (112), Poljica (84), Rudina (35), Velo Grablje (45), Vrisnik (240); **Krk:** Milohnići (77), Polje (293); **Lošinj:** Čunski (136), Sveti Jakov (41); **Pag:** Kustići (123), Mandre (160), Stara Novalja (234).

Second island group:

Cres: Belej (72), Beli (38), Dragozetići (19), Lubenice (43), Osor (80), Punta Križa (81), Štivan (27), Ustrine (34); **Čiovo:** Arbanija (613), Okrug Donji (126), Žedno (91); **Dugi otok:** Zaglav (237), Žman (328), Luka (164), Savar (93), Dragove (139), Soline (124), Veli Rat (167); **Lastovo:** Ubli 303; **Mljet:** Blato (77), Korita (90), Maranovići (60), Polače (123), Prožura (78); **Pašman:** Kraj (290), Pašman (452), Banj (256), Ždrelac (258); **Šolta:** Donje Selo (229), Gornje Selo (252), Maslinica (69), Srednje Selo (150), Stomorska (117); **Vis:** Oključna (11), Podhumlje (60), Podselje (31), Postražje 36, Pošpilje (42), Žena Glava (70);

Third and fourth island groups:

Each of the islands in the third and fourth groups has one settlement and one school building as a rule, except for Molat (three settlements, three buildings, no pupils in any of them), Prvić (two settlements, two buildings, one of them used), Iž (two settlements, two buildings, one of them used) and Šipan (two settlements, two buildings, both used). In the fourth group all school buildings and in the third group several school buildings are out of use: Bargulje, Biševo, Jakljan, Kaprije, Mali Drvenik, Mali Iž, Molat, Ošljak, Premuda, Prvić Šepurina, Rava, Rivanj, Sestrunj, Veliki Drvenik, Vele Srakane, Zapuntel, Zverinac and Žirje.

The total number of deserted school buildings on the islands (unofficial data) is **84**.

Secondary school pupils:

There are secondary schools only on the islands of the first and second groups, i.e. on the islands with a significant primary school population. According to the official data of the Ministry of Education and Sports, the number of pupils in the last school year (1994/95) was as follows:

Brač: 464 pupils; Bol (129); Pučišća (114); Supetar (221)

Hvar: 413 pupils

Korčula: 940 pupils; Blato (262); Korčula (451); Vela Luka (227)

Krk: 488 pupils

Lošinj: 534 pupils (some classes are in Cres on the island of Cres)

Pag: 171 pupils

Rab: 239 pupils

Vis: 142 pupils

The total number of secondary school pupils on all islands: **3,391**.

The total number of primary and secondary school pupils: **15,728**.

These figures show that school age population make about 13% of the island population. **56.5%** primary school pupils stay on the islands to continue with the secondary school education.

The biggest concentration of both schools and pupils is on the largest islands. Since it is desirable to maintain and improve such situation, the quality of secondary school education should be raised in the existing schools and new schools should be opened in the places where such conditions exist, particularly on the island of Ugljan (together with Pašman) and Murter, where there is a sufficient number of primary school pupils. (A similar school existed on the island of Murter until 1970s, with an excellent performance).

It is a well-known fact that most schools train pupils for professions which are most demanded on islands; beside general, liberal education, they offer training for catering, tourism, hotel business and maritime affairs, but also for very specialised trades like stone-carving (Pučišća).

The number of pupils on the islands of the second and especially third groups is very small, particularly in regional classes of primary schools. Therefore, classes are very often formed comprising two or more grades, which, of course, affects the quality of tuition.

The other acute problem of small island schools, particularly those with less than 35 pupils, are teachers. On one hand there are not enough teachers; on the other, those who have decided to take a job on an island, work under much harder conditions than their colleagues on the mainland for equal pay, which again affects the quality of tuition.

VIII. ADMINISTRATIVE TERRITORIAL ORGANIZATION

The administrative territorial organisation of islands greatly varies:

1) Bigger islands are divided into several municipalities: BRAČ into seven municipalities, KRK into six municipalities and one town, HVAR and KORČULA - each into three municipalities and one town, PAG and UGLJAN each into two municipalities, and VIS into one municipality and one town.

2) The territory of only a few islands, together with the surrounding small, as a rule uninhabited islands, corresponds to the territory of their municipality. They are MLJET, LASTOVO, ŠOLTA,

MURTER (the municipality of Tisno is significantly bigger than MURTER), PAŠMAN, DUGI OTOK, VIR, CRES (the municipality of Cres does not include the entire island of CRES), LOŠINJ (the municipality of Mali Lošinj includes a part of Cres and is the only island-municipality with inhabited surrounding islands) and RAB (which, as an island, has the status of a town).

3) All other islands belong to the coastal towns (KOLOČEP, LOPUD, ŠIPAN and LOKRUM to the city of Dubrovnik; DRVENIK VELI and DRVENIK MALI to Trogir, KRAPANJ, ZLARIN, ŽIRJE, KAPRIJE and KAKAN to Šibenik; IŽ, RAVA, MOLAT, IST, ŠKARDA, PREMUDA, SILBA and OLIB to Zadar) or are a part of other island or coastal municipalities (BIŠEVO and SVETI ANDRIJA are a part of the municipality of Komiza on the island of VIS, PRVIĆ of the municipality of Vodice, VRGADA of the municipality of Pakoštane, BABAC of the municipality of Sveti Filip i Jakov, KORNATI and ŽUT of the municipality of Tisno on the island of MURTER, ZVERINAC of the municipality of Sali on the island of DUGI OTOK, SESTRUNJ, RIVANJ and OŠLJAK of the municipality of Preko on the island of UGLJAN, ILOVIK, SUSAK, UNIJE, MALE SRAKANE and VELE SRAKANE of the municipality of Mali Lošinj). The PELJEŠAC peninsula is divided into two municipalities.

The inhabited islands belong to six counties, their respective shares in their respective county varying (on the islands of the County of Istria there officially are no inhabited places). 48 islands are divided into or belong to 170 municipalities/towns, in six counties:

- 10 of 34 municipalities/towns - County of Primorje-Gorski kotar,
- 1 of 11 municipalities/towns - County of Lika-Senj,
- 8 of 32 municipalities/towns - County of Zadar,
- 1 of 17 municipalities/towns - County of Šibenik - Knin,
- 14 of 55 municipalities/towns - County of Split-Dalmatia,
- 10 of 21 municipalities/towns - County of Dubrovnik-Neretva

IX. DEVELOPMENT LEVEL AND POTENTIAL

9.1. Actual situation

Collective data and averages, which are usually used to define the development stage of a region (number of inhabitants and population structure, population density, working-age population, employment, growth rates, indicators of general development and standard of life, economic and non-economic structure etc.) cannot be applied in the same way on the islands. Differences between individual islands and even groups of islands are big and one should know and understand them. If we rank 47 permanently inhabited islands according to their development, starting from the least

developed, there are as much as 30 islands which should receive help, mostly small ones: BIŠEVO, ŠKARDA, DRVENIK MALI, ZVERINAC, PREMUDA, SRAKANE VELE, RIVANJ, RAVA, DRVENIK VELI, LASTOVO, ŠIPAN, KOLOČEP, IST, OLIB, MOLAT, LOPUD, SESTRUNJ, ŽIRJE, ILOVIK, SUSAK, OŠLJAK, KAPRIJE, UNIJE, MLJET, SILBA, VRGADA, IŽ, VIS, ZLARIN and PRVIĆ (Šibenik archipelago).

They are followed by somewhat more developed islands of KRAPANJ, ŠOLTA and DUGI OTOK and the PELJEŠAC peninsula. The last group are the islands which cannot be considered as underdeveloped according to the usual indicators, listed from the least to the most developed: KORČULA, HVAR, PAŠMAN, VIR, MURTER, ČIOVO, BRAČ, CRES, UGLJAN, RAB, LOŠINJ, PAG and KRK. The Brijuni Archipelago also belongs to this group, but it is not subject to the usual measures of development policy since it does not have permanent residents.

This classification dates from the 1980s, when some islands or, to be precise, some coastal places on the islands and their surroundings stopped declining and began to grow economically and demographically thanks to tourism and, to some extent, trade and shipping. The growth was rapid and did not feature sustainable development. At the same time, the interior of big islands and all small islands continued to decline. Therefore the islands at large became a much more complex issue of development management than they were in the 1960s and 1970s. Islands or parts of islands which have experienced economic growth and where rapid construction took place, reaching their infrastructure development limit, demand a kind of management more appropriate to fast-growing urban settlements. They have surpassed other islands or part of islands which need revival.

If bigger islands are considered from the point of view of this categorisation, one can see that they are even more neglected in terms of development. Even on the most developed islands there are parts which lag behind in their development and need the same kind of assistance as the least developed small islands. These are the regions of Pupnat and Potirna on the island of KORČULA; the interior of the island of LASTOVO with the locality of Lastovo; the island of VIS except for a greater area of the localities of Vis and Komiža; the part of the island of HVAR between Sućuraj and Jelsa and the region of Pitve, Svirče, Grabje and Brusje; the interior of the island of BRAČ except for the localities of Nerežišća, Selca, Dol and Donji Humac; parts of the island of ŠOLTA Gornje, Srednje and Donje Selo and Maslinica; the island of PAŠMAN, except for the region of Tkon, Mrljane, Neviđane and Ždrelac; the locality of Lukoran on the island of UGLJAN; the region of Mali Iž on the island of IŽ; parts of DUGI OTOK: Luka, Savar, Dragove, Soline, Verunić and Veli Rat; parts of the island of PAG around Lun, Metajna, Košljun and Vlašić; the island of CRES, except for the regions of the localities of Cres, Martinšćica, Punta Križa and Osor; the region of the municipalities of Dobrinj, Vrbnik and Baška on the island of KRK, except for the localities of Vrbnik, Šilo and Baška; the area of Šotovento in the area of the town of Krk; and the western part of PELJEŠAC.

On the top of this reversed list one should not, however, put the inhabited Croatian islands but some dozen of uninhabited ones. On these, once busy islands, now there are only settlements without permanent residents, with no economy at all. Natural resources are either not used or are devastated by illegal construction of holiday houses. The existing resources are not maintained and rapidly decay. The most important islands in this group are the following: SRAKANE MALE, PRVIĆ (Kvarner islands), GOLI, SV. GRGUR, BABAC, SV. ANDRIJA, JAKLJAN, KORNATI, as well as ŽUT and SIT with the surrounding islands.

9.2. Comparative development advantages

In the past, Croatian islands frequently had comparative advantages. They have them today as well, and it would not be an exaggeration to say that now they have more advantages than ever.

The most important is their **climate**. Temperature and insolation of islands enable earlier ripening of field crops and a longer vegetation period, making up to three harvests of some cultures possible in a single year. Climate makes islands attractive to tourists, but also to those who want to work there or live there in their old age.

A further comparative advantage is their **geographical position**. Croatian islands are centrally located in Europe, close enough to tourist generating countries and markets for island agricultural products. One should note here that the position of an island does not have to be more favourable if it is closer to the mainland. With the development of trade, traffic and a spatial division of work in general, the sea is becoming the main island resource in the sense of both traffic and production. Being situated in the middle of the Adriatic Sea also implies some advantages. With all their characteristics, islands have a great potential for the development of tourism, especially yachting: they are unrivalled in their attractiveness to yachtsmen.

Beside the climate, **the landscape** of islands also adds to their attractiveness to tourists. The extremely indented island coasts enable (more than on the Croatian mainland coast and on other Mediterranean islands) a relatively inexpensive construction of ports and related facilities. A comparative advantage is also a healthy environment, which is polluted only in some places, but not contaminated anywhere. **Healthy environment**, which is becoming more and more important as a part of tourist supply, is another aspect in which the islands stand apart from the existing and potential destinations on the mainland. It is perhaps the only positive consequence of neglecting the agriculture: former agricultural land, which is not cultivated any more, is spared from the use of fertilisers and pesticides, and is therefore suitable for the development of environmentally friendly agriculture and the production of “healthy agricultural products”.

Geographically isolated islands are suitable for the preservation of the purity of plant and animal species. The number of such localities is getting smaller so that the Croatian islands will soon become one of the rare places in Europe where some species can be protected from undesired cross-breeding, (e.g. bee-keeping, and many agricultural crops).

There is another comparative advantage of the islands, which dates from recent times and has not been sufficiently recognised yet: the main island industries, i.e. **tourism and agriculture**, meet the requirement for **economically and environmentally sustainable development**. Experience in other parts of the world indicates that, contrary to our practice, the most profitable tourism on islands is a small-scale one, whose marketing is oriented towards guests with environmental awareness and a greater spending power. Intact nature and harmonious anthropogenic island environment are a part of the offer in such type of tourism; its sustainable exploitation is in the interest of those who invest in tourism. Their economic interest corresponds to the public interest to preserve the natural and cultural heritage of islands and their autochthonous qualities, which is in a way a guarantee that they will really be preserved.

The same goes for the island agriculture. Traditional, but also almost all new **agricultural products** produced on the islands can be **cultivated without pesticides** (this type of cultivation is also a condition for their marketing), and it pays to grow them because they thrive in the island climate better and earlier than on the continent. In this way the economic and environmental sustainability correspond in both the island tourism and the island agriculture, which gives the islands with the Mediterranean climate a comparative development advantage which is unique and permanent.

Comparative development advantages of the island agriculture are based on its specific structure and position in the overall economic structure of the islands. It is in the island vineyards that the majority of the “well-known” and other protected Croatian wines are produced, without which the Croatian supply of wines would be much poorer. One half of all olive trees in Croatia are grown and more

than a half of the total Croatian production of olive oil produced on islands with significant production of all sorts of citrus and other fruits, the famous island lamb, sheep-milk cheese etc. These high-quality, special and recognisable products add a lot to the Croatian market of agricultural products. Food production without pesticides is the easiest to organise on the islands, which can represent a specific quality of the island agriculture and tourist supply. In this way the economic and environmental sustainability overlap in both the island tourism and the island agriculture, which, given the specific island production patterns, gives islands a permanent comparative development advantage.

9.3. Limitations

There are also factors which limit or slow down the development of islands.

The greatest limitation is the lack of workforce, and on small islands also of people at reproductive age. With the exception of a few big islands, fast development is impossible without new inhabitants, especially experts needed for prosperous industries. However, past attempts to open new industrial plants and bring workers from the mainland have shown that new-comers adapt slowly and with difficulties, often without success, and that island communities do not easily accept new members. Overcoming this factor is the most sensitive and definitely the most time-consuming task for the agents of island development policy.

The main natural limitation is the permeability of island soil, due to which there are no permanent surface watercourses in spite of sufficient quantities of rain. It is technically possible to overcome this factor, but it would require great investments. This is the main reason why water supply strategy mainly relies on bringing water from the mainland.

Another natural limitation is karst, which leaves very little arable land and makes a cheap construction of roads impossible. This can be rectified, but it also requires great investments.

Insufficient port and road infrastructure on islands is also a limitation, which affects traffic, economy and everyday life in general.

A special infrastructure limitation is posed by the neglected and mostly fallen in field lanes. Without maintenance for decades, they make access to agricultural resources impossible. However, this is not crucial as a medium-term factor, because field lanes can be cleared and made suitable for the traffic of agricultural and, in most cases, other machinery in a short period of time.

Deficient primary education on small islands is an insurmountable short-term limitation. Newly started families of island inhabitants or newcomers are directly threatened when children reach school age and there is no school on the island or the school does not provide a minimum of education quality. When a child reaches school age on a small island, it almost always means that he or she is going to leave the island together with at least one parent, the other parent following suit.

Insufficient infrastructure for the waste water management and the complete lack of infrastructure for the solid waste disposal is for the time being not a great limitation, because the quantity of wastewater or solid waste is such as to contaminate the environment. Although the island ecosystem still resists this pollution, if we allow it to grow into contamination, the islands will face a limitation which can be removed only with great efforts and at great cost.

The greatest institutional limitations are land registers which are in disorder and unclear ownership status of agricultural and building land and buildings on all islands. It directly prevents investment

because natural persons or legal entities from which land should be bought or hired simply do not exist.

Another institutional limitation is the slow procedure of issuing necessary permits, which makes investors in sustainable development, which are indispensable, reluctant to invest in the islands.

The existing administrative territorial structure should also be considered a limitation. It can be overcome by several laws or amendments, which would take into account the principle that an island is an inseparable development unit.

9.4. Island development at a crossroads

The main comparative development advantages of the Croatian islands have developed in the last twenty years and turned the islands into one of the most valuable areas of the Mediterranean. Being increasingly attractive to investors, islands have a chance to stop the practice which has been followed for half a century, i.e. the practice of insufficient and short-term exploitation of their resources, and to continue with a sustainable development. Today the islands are also the target of investors who want to achieve the greatest possible profit in the shortest possible time and are not interested in preserving the island resources. Although environmentally and, in most cases, socially unsustainable, such investments are sustainable economically and technologically and yield quick profit. In the circumstances of a great post-war shortage of money, they can be tempting not only to the island inhabitants but also to the agents of island development policy.

Thus, the islands have arrived at a development crossroads. They can take the way of sustainable development and finally become a special and attractive place for investment and life in general, or they can take a shortcut of quick and unreasonable exploitation, which will irretrievably impoverish and relegate them to a marginal status in the Croatian and Mediterranean economic development. Taking into account this crossroads and the proverbial sensibility of island resources in general, and since the island natural and cultural heritage is becoming increasingly neglected or unsustainably used, one must conclude that the management of island development is a necessity and a national interest. On small remote islands and in the interior of the big ones this need is justified by the fact that they have been neglected and are dying out. On the coast of bigger islands, on which some places are among the most developed in Croatia according to the criteria applicable to the mainland, this need has developed because the ecosystem is overstrained and the island community shaken. The attractiveness of islands to investors also calls for management. Islands, which are not less developed than the interior of Istria, Lika or the Dalmatian hinterland, are targeted by investors and therefore require urgent and concerted action.

The Republic of Croatia has the most interesting islands in Europe from the point of view of utilisation, which deserve special protection according to the Constitution. Therefore it must manage the development of its islands both on the national level and the level of counties and municipalities (towns). The performance to be expected should not go below that achieved by other developed insular countries a long time ago.

X. ENCOURAGEMENT TO ISLAND DEVELOPMENT

10.1. Goals

SUSTAINABLE DEVELOPMENT is the principal goal and purpose of island economy and ecosystem management. The basic goal is thus determined not as a desired future state which needs to be reached and maintained, but as a steady and fully sustainable use of island potential on an economic, ecological, technological and social level. The given basic goal entails continuous improvement of the quality of life on the islands. Island development management implies the construction of an ecologically appropriate infrastructure and permanent stimulation and orientation of the island resource users towards sustainable development, and prevention of a possible change of course.

SOCIALLY ADEQUATE POPULATION DENSITY is a further goal of island development management. An island is adequately populated when number, age, sex and qualification structure, as well as the way and standard of living, create a community which is appealing enough not only to permanently retain its members, but to draw in new ones, and which can be reproduced without direct measures of state developing policy. Such communities existed in the past although on a different level of standard, on almost all Croatian islands, and are even existing today on a few of the larger ones. This goal can be attained directly, through sound development measures, notwithstanding that on small islands under modern economic conditions one cannot expect to obtain the former population density. Owing to high productivity on islands, economically sustainable population density will, as a rule, be too small to be socially satisfying; consequently the only way to achieve this goal will be by stimulating activities which, throughout the year, can enable recreation and working stays of guests from the mainland, and which require different and additional work force.

STAY OF PRESENT POPULATION, ENCOURAGEMENT TO FAMILIES TO HAVE MORE CHILDREN AND RETURN PRIMARILY OF YOUNGER, ECONOMICALLY ACTIVE POPULATION WHICH LEFT are the demographic goals of island development fully co-ordinated with the goal of socially satisfying population density. Considering the islands' inertia, these goals can be accomplished by setting up conditions to resettle population from other localities if the islanders cannot bear the burden of development all by themselves.

The demographic goals of the National Island Development Programme are complementary with the goals of the National Demographic Development Programme. Of the latter's goals concerning all regions of Croatia, the following need to be emphasised:

- increase in birth rate and its continuous maintaining above the death rate which is to rise every year due to the aged Croatian population, until the demographic scene has changed,
- increase in birth rate, as well as efforts to prevent immigration of younger population and bringing in immigrants, enabling the Croatian demographic tree to assume a more regular shape,
- short-term goal is to stop the present explicitly unfavourable demographic development (that is, to stop dying out); long-term goal must be revitalisation and total rejuvenation of the population,
- stopping the focusing of the Croatian population on large centres and the general polarisation of the Croatian space into urban immigration and rural emigration areas, increasing the quality of life and social wealth of rural and provincial regions and promotion of the life in them.

For a harmonious implementation of the two programs the Croatian demographic goals must be achieved directly, especially when we consider that a large part of the state was devastated by the war and that population deserted such areas. Sustainable technology and level of productivity needed for the optimum use will determine, in respect of both quality and quantity, the necessary work force and the number of permanent and occasional inhabitants, which will gradually lead to full economic employment and subsequently to socially optimum population density.

From these basic goals there ensue some medium-term (ten years) and short-term (two to three years) goals which can be determined as a future desired state.

BALANCING THE ISLAND INVESTMENTS CONDITIONS with the conditions under which investments take place on the Croatian mainland is a medium-term goal of the island development management. It refers to economy, as well as to the public standard and generally to the island everyday life, which do not make investments on the islands appealing today. This goal can be realised primarily by infrastructure construction and will be attained when the present insufficient island links to the mainland and the links between and within the islands no longer scare off investors or the prospective new islanders from settling there. Furthermore, this goal will be attained when the water supply, sewage and waste disposal reach the same level as in the urban areas of Croatia and when they are technologically equipped according to the European standards of environmental protection, and when investors and new islanders can benefit from nearly the same quality of social, educational and other services as are provided on the mainland.

MORE DIVERSIFIED STRUCTURE OF ISLAND ECONOMY is a further goal of the island development. The more activities it has in its structure and the more production units within its activities, the easier it will be for the island economy to overcome the ups and downs of the island product demand.

Medium-term goal also includes VERSATILITY OF THE ISLAND HOUSEHOLD, the basic unit of the island economy. The more activities its members are involved in, the more stable household is on the economic and microsocal levels. The same applies to the island companies and co-operatives and other possible forms of economic organisation on the islands. This goal will only be accomplished if natural economic possibilities are fully and viably made use of.

FULL PHYSICAL ACCESSIBILITY OF ISLAND WEALTH is a short-term goal of the island development management. Accessibility can be considered as a prerequisite to management, as the development measures can be coherently formulated and carried out successfully only if all parts of the islands are easily accessible. Physical accessibility will be attained when the total of island agricultural land and other areas used for production or consumer purposes feature a road network to facilitate transport of people and the necessary equipment. Consequently, the investors would not be burdened with the cost of infrastructure construction.

An equally important short-term goal is ACCESSIBILITY OF ISLAND VALUES IN LEGAL TRANSACTIONS. It will be attained when real estate property is regularly registered, boundaries are established and when property or at least the right of use are indisputable, that is when the real estate transactions on the whole territory of an island are legally feasible.

The island management and its goals are not exhausted on the island proper. The island management extends to the sea and sea-bed around the islands, the traditional space of island life and business activity where islanders should not do less than they have always customarily been able or permitted to do.

10.2. Principles

Comparative developing advantages of islands, diversity, value and demands relating to their wealth indicate that the island development should be managed according to the following principles:

ISLANDS ARE EQUAL PARTS OF CROATIA IN TERMS OF DEVELOPMENT POLICY. This principle indicates that all locations and territories of Croatia, including the islands, deserve an equal development care and attention. This principle finally overcomes the negligence in the development policy which accounts for the division into the islands and the mainland, and on the "large" islands and

"small" ones. Islanders need to exercise equal rights to education, social security and safety of life as other citizens of Croatia and the state has to provide for a permanent exercise of these rights.

ISLAND IS A SYSTEM consisting of the island ecosystem, economy (all activities of the people relating to production, consumption and traffic) and the community of people living there. An island appears as a system which can only be successfully managed integrally.

SUSTAINABLE AND FULL USE OF ISLAND WEALTH. Owing to its comparative development advantages, islands can be preserved only if taken integrally and exploited in a sustainable way. Therefore, the investments encouraged on the islands will be those which are ecologically (use and preservation of the environment), economically (returns), technologically (reaching foreseen production) and socially (preservation and promotion of island community) sustainable. Every use of the island potentials which is partial or unsustainable in some of its forms threatens to unbalance the island system and leads to its less than optimum use and even to its fatal and total exploitation in the long run.

ISLAND IS A DEVELOPMENT UNIT whose development is a primary concern of islanders. The state and county provide only for necessary institutional conditions and incorporation in the national infrastructure and superstructure systems.

ACTIVE ROLE OF STATE AND COUNTY ADMINISTRATION AND LOCAL SELF-GOVERNMENT IN ISLAND DEVELOPMENT. This principle applies to all regions of Croatia which need reconstruction. It needs to be carefully developed due to its sensibility. The islands indisputably need development. The role of the state in their life was disproportionately passive in the past. The state needs to be present on the islands which require revitalisation, and must actively invest in infrastructure and superstructure as a special entrepreneur who, from the position of an integral island development, encourages and directs other entrepreneurs to invest in the sustainable development and prevents investment in the unsustainable one.

CONTINUITY OF ISLAND DEVELOPMENT MANAGEMENT. This principle commits to continuous care for the actions initiated, which means that the initiators of island development policy need to fully carry out the programs they have started and to select, use and modify, in the long run, development instruments which will direct users of island resources toward their fully sustainable use. Therefore, the islands will finally be protected from partial and sporadic harmful operations, shielded by the economic, demographic and social policies.

10.3. International conventions

The Republic of Croatia signed the most important international conventions which, inter alia, refer to the development of the islands:

AGENDA 21 (Program for 21st century), Article 17. includes Protection and sea management and Article 18. Protection and water management,

Barcelona Convention on the Protection of the Mediterranean, and its four Protocols from 1976/1980 of which the Protocol for the Protection of Seas from Land-based Pollution (LBS) is particularly known,

MARPOL Convention on the Protection of Sea from Ship and Aircraft Pollution from 1973/1978,

London Convention on Dumping Waste into the Sea from 1972,

UN Convention on the Law of the Sea (UNCLOS),

Mediterranean Action Plan as a component of UNEP (UN Program for Environmental Protection) adopted in Barcelona in 1975,

Convention on the Protection of biological Diversity from 1992 (ratified by the Republic of Croatia in April 1996),

Convention on the Prevention of Climate Change from 1992,

Convention on the Protection and Use of Transboundary Watercourses and International Lakes from 1974,

Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention) from 1991, ratified by the Convention Confirming Act in April 1996,

Convention on the Control of Transboundary Waste and its Disposal (Basel Convention), ratified in March 1994.

Together with the countries with which we share the Adriatic sea and under the auspices of the European Union, a common programme for the protection and optimum use of biological wealth of the Adriatic Sea is being prepared based on the Crete Declaration from 1994, whose signatory is the Republic of Croatia.

By their approach and principles, as well as by particular, measurable short-term goals and tasks, these conventions commit the Republic of Croatia to preserve its environment and to advance it in a modern way and by modern concepts. Islands are pointed out as a subject of particular care.

10.4. Development measures

Exceptionally significant island development measures are:

ADJUSTMENT OF INSTITUTIONAL FRAMEWORK WITHIN WHICH THE USERS OF ISLAND WEALTH OPERATE, and which encourages sustainable economic activities and discourages activities which would make development unsustainable. Institutional framework will be adjusted in order to finally eliminate the said institutional limiting factors of the island development.

The institutional framework within which island investors and other beneficiaries of island wealth operate will be adjusted by changing the current laws and by passing new ones or adopting by-laws and other regulations. Regulations providing for interdictions, permissions, physical planning documents and regulations on taxes, subventions, concessions, customs duties and state bank loans for development will be continually amended and passed.

STATE INVESTMENT INTO CONSTRUCTION OR READJUSTMENT OF ISLAND INFRASTRUCTURAL SYSTEMS. This includes state infrastructure programs to improve the conditions of life on the islands, of work and investing into sustainable development, as well as individual readjustments which need not be set up by a programme but by observing cave-ins and cases for urgent reparation.

Within the framework of the existing state infrastructure programmes, special island subprogrammes will be determined ensuring the continuity of developing care for islands. By carrying out these programs and by making direct investments, the government will act as a special entrepreneur making investments in the public interest.

ADVANCEMENT OF SOCIAL AND EDUCATIONAL SYSTEM AND CULTURAL ACTIVITIES which take into account island particularities. Therefore, amendments to the laws and regulations will be passed and state programmes introduced in the fields of health care, education and culture which will take into account small populations of island beneficiaries, their isolation and poor links to the regional centres, as well as the dispersion of mostly small settlements in which they live.

ELABORATION OF ISLAND DEVELOPMENT DOCUMENTATION AND ITS PROMOTION AND DISTRIBUTION TO INTERESTED ISLAND INVESTORS (physical plans, preliminary designs, investment projects and so forth) determining the place, scope or technology of investment in particular activities, and guaranteeing sustainable island development.

Beside the proposals and follow-up to the common incentives of the development policy and participation in the development and carrying out of the national infrastructure and superstructure programs, the Ministry of Development and Reconstruction will undertake the first investments and prepare the island development documentation. It will be composed of programmes which set out full and sustainable use of island potentials, preliminary designs and suggestions for investment which determine the type, scope and dynamics of investment on the particular islands or parts of the islands. It will be prepared by the Ministry of Development and Reconstruction in co-operation with the coastal and island counties and island municipalities and will serve as a presentation of island resources and as an invitation to investors which are ready to meet the requirements of sustainable development.

Some development measures (such as readjustment of infrastructure facilities) are being carried out for years now and will need to be adapted according to the National Island Development Programme; some will be able to be formulated and immediately proposed upon the adoption of the National Programme, while some others will require additional consideration and analysis. Some measures will have a regional character which means that they will refer to the island economy, traffic, school system, health services or culture at large, while others will refer only to one particular island economic or social activity. Given the island development diversity, there is a need to adopt measures which will refer solely to the most neglected groups of islands. The island development measures will be devised by the Ministry of Development and Reconstruction in a necessary co-operation with the competent ministries and government agencies, as well as with the competent bodies of the coastal and island counties. Development measure proposals include close observation and procedural support for their adoption by the Government or Parliament of the Republic of Croatia. At each stage of the procedure, a proposal for a particular measure will be presented, explained, justified and promoted. The work of the Parliament will be followed and observed for different policy, programmes and measures suggestions which are not high on the agenda but can, nonetheless, influence developments. The efficiency of measures will be closely followed so that measures can be readjusted or replaced by the more convenient ones.

XI. RESPONSIBILITIES AND TASKS OF THE NATIONAL GOVERNMENT, AND COUNTY ADMINISTRATION AND LOCAL SELF-GOVERNMENT

Island development tasks and measures contained in the National Programme will be initiated by the Ministry of Development and Reconstruction and carried out by particular ministries, government agencies, public enterprises and bodies of local administration and self-government in the seven counties which include islands (the counties of Istria, Primorje-Gorski kotar, Zadar-Knin, Šibenik, Split-Dalmatia and Dubrovnik-Neretva) as well as the bodies of local self-government of island municipalities and towns, and those municipalities and towns which include both a coastal and an island area.

Development measures and tasks will include the drafting and adopting of laws and regulations and the monitoring of their effect on the development, devising and implementation of state infrastructure and superstructure programmes to be adopted by the Government, the devising and adoption of programmes for the use of island resources and special physical plans, as well as the devising and promotion of various project documentation for inviting, assisting and guiding investors in the sustainable development of islands.

Since the management of island development is a very complex issue, most of the tasks will have to be carried out by several ministries and government agencies, and in most cases by the county administration bodies as well. In this way tasks will be carried out at several administration levels and will have to be co-ordinated. The Island Development Centre of the Ministry of Development and Reconstruction, with the main task of starting and implementing the National Programme, will be enlarged and additionally equipped.

11.1. Passage of the Islands Act

With the passage of the Islands Act the requirement from Article 52 of the Croatian Constitution stating that the state must provide special protection to Croatian islands will be met. The Act will provide for an integral planning of the development of islands, incentive measures for the island economy, exemption of and amendments to some of the existing laws relating to the development of islands, and government programmes which will gradually put infrastructure and superstructure on islands on the same level with those on the mainland.

11.1.1. Economic incentives

The main medium-term goals of the island economy development is for the economic structure and households to be as versatile as possible. Economic conditions for the achievement of these goals should, among other things, be created by a series of co-ordinated measures of fiscal policy. These measures should aim at encouraging small and medium investors in activities which ensure a sustainable island development, the users of sustainable technologies and households who want to enlarge the number of their activities. Special encouragement should be offered to households engaging in both tourism and agriculture. Activities which should be encouraged on all Croatian islands through fiscal measures are:

- * **environmentally friendly agricultural production** on the existing and new plantations, in the open air and in enclosed facilities (cultivation of olives, viticulture, Mediterranean fruit growing, cultivation of carob, citrus fruits and medicinal and aromatic herbs, vegetables and flowers)
- * **small-scale and semi-intensive sheep and goat-breeding**
- * **bee-keeping**
- * **processing of agricultural products protected by geographical indication** (sheep and goat-milk cheese, honey and other epicultural products, "well-known" and other quality-wines, olive canning, production of pure and extra pure olive oil, pharmaceutical and cosmetic semi-products and products)
- * **cultivation of shellfish, fish and other sea animals**
- * **coral diving**
- * **sponge diving**
- * **stone quarries**
- * **stone-cutting**
- * **manufacture of sails**
- * **manufacture of fishing tools**
- * **pottery**
- * **production of island souvenirs**
- * **small-scale tourism in the existing renewed and adapted facilities**
- * **small ship-building**
- * **private shipping by sea, road and air**
- * **private health services and**
- * **private schools.**

Investors on small islands and investors who count on the return of island inhabitants should be encouraged by fiscal measures. Therefore investors and potential new islanders should have privileges on the most neglected islands in terms of development. These are:

Unije, Susak, Srakane Vele, Ilovik, Premuda, Silba, Olib, Škarda, Ist, Molat, Dugi otok, Zverinac, Sestrunj, Rivanj, Rava, Iž, Ošljak, Vrgada, Prvić (Šibenik archipelago), Zlarin, Kaprije, Žirje, Veli Drvenik, Mali Drvenik, Vis, Biševo, Lastovo, Mljet, Šipan, Lopud and Koločep.

One should add to this group the once inhabited islands which are now completely deserted or inhabited only from time to time. These are the following: **Srakane Male, Prvić (Kvarner islands), Goli, Sv. Grgur, Babac, Sv. Andrija and Jakljan, as well as Kornati and the islands surrounding Žut and Sit.**

The underdeveloped parts of the islands of Cres, Krk, Pag, Ugljan, Pašman, Šolta, Brač, Hvar, Korčula, Lastovo and Vis will indirectly be subject to incentive measures. The interior of these islands is suitable for the development of most activities which will be encouraged by economic measures.

The effects of fiscal and other development measures must be constantly observed in order to prevent any negative and enforce positive effects. Therefore it is necessary, in the course of the implementation of this programme, to do the following:

- 1) analyse the share of islands in the total revenues of the national and the local budgets,
- 2) review and analyse fiscal instruments for encouraging development
 - existing taxes (income, profit, company, real estate sales taxes etc.) and taxes which will be introduced (value added tax),
 - possible ways of subsidising,
 - possible effects of exemptions and privileged rates,
 - possible tax measures of national and local tax authorities,
- 3) review and analyse the loan policy for encouraging development,
- 4) analyse the activity of small and medium-sized island firms (especially the share of transport costs in the price of a product which is brought to the island or produced on the island and transported to the mainland),
- 5) chose instruments in accordance with the principles and goals of the National Programme,
- 6) propose a group of measures,
- 7) observe the effects of measures (formulate indicators, establish the schedule for observation, necessary data and information system).

11.1.2. Division into agricultural sub-regions and the use of deserted agricultural land

Agricultural land on islands is a limited and environmentally very sensitive resource. Therefore great attention should be paid to protecting it from further degradation and from using it for different purpose. It should be used as economically as possible. The Islands Act must provide that all Croatian islands are a separate "island agricultural sub-zone" within the Adriatic agricultural zone. Thus, it will be possible to treat all island agricultural issues separately and to adopt adequate measures of agricultural policy in accordance with their special properties. Within the island sub-zone, zones with the prevailing cultivation of olives, wine grapes, medicinal and aromatic herbs or breeding of sheep, goats or keeping of bees must be defined. The Islands Act must provide for the adoption of by-laws and other implementation regulations to regulate this area.

By referring to the principle of full utilisation of island land and, formally, to the Act on the Use of Agricultural Land, the Islands Act should overcome the obstacles created by the undefined ownership or the absence of owners of island agricultural land. Hiring such land should be made possible, providing for a mechanism to protect and compensate the owners. Before hiring out uncultivated land, land registers must be brought in order.

Beside these activities, it is necessary to draft and submit for legislation procedure a law on environmentally friendly (organic, biologic) agriculture, based on internationally accepted standards of IFOAM and the Directive of the European Union Council No. 2092/91 on the environmentally friendly agriculture and the appropriate designation of agricultural products and food produced in this way.

11.1.3. Agricultural production incentives

In order to enable intensive development of agricultural production of the Croatian islands it is necessary to create conditions for a profitable production. To this aim the following measures should be taken:

- ensure the complete or partial purchase of island agricultural products if they are produced under the conditions set by the state. The amount of this necessary state support will depend on the existing communications with and distance from the mainland. The state will support the purchase of only those products which were produced according to the authorised programmes;
- divide pilot projects for agricultural production, appropriate to the ecological and technological conditions on a particular island (production, species, technological procedure, minimum surfaces);
- ensure additional quantities of water (see 11.4.3);
- stimulate viniculture production and the use of resources for the plantation of new vineyards.

11.1.4. Use of deserted buildings

Referring to the principle from 11.1.2, the Islands Act should enable the use of deserted buildings on islands primarily for economic purposes. The hiring of such buildings must be made possible and, similarly as with agricultural land, a mechanism for protecting and compensating the owners ensured.

"We also state that if someone builds a house in the town with lime, it shall belong to him if he holds it for one year. However, if he does not stay in the town to live in this house like other citizens living in the town do, he shall lose it."

The Korčula Statute from 1265

"...the present or future headman or judges can, of their own free will and as they deem the most just, give and secure roofless and deserted houses to all persons, both native and foreign, who want to adapt them, and such houses shall belong to these people and persons and their off-spring and successors... However, the headman and the judges shall previously ask the owner of the house they intend to assign whether he wants to repair it, and if he does not want to repair it, he shall lose all rights to this house, which shall belong to those persons to whom the headman and the judges assign it and their off-spring and successors, as previously said, and in the case the owner of the house declares that he wants to repair the house, a two-year deadline shall be given to him to roof it, and if he does not do it he shall lose the house and 10 perpers, and (all this) shall fall to the commune."

The Korčula Statute from 1426

11.1.5. Port management

The management of ports has not been sufficiently regulated. Rent income potential of ports is not used. The lack of resources makes maintenance difficult, on small islands often impossible. The first step in removing this obstacle would be the defining of an integral planning for and management of all ports on the Croatian islands. The form and method of such planning and management will be established by the Islands Act.

11.1.6. Small-scale fishing and hunting

The Islands Act must enable the inhabitants of islands, especially of the underdeveloped islands, who engage in small-scale fishing to obtain the permit free of charge. Since the people who fish for their own needs are generally old and poor, this measure is a social one.

The Islands Act should also regulate hunting. The island hunting plans must prohibit the settlement and breeding of game which does not naturally live on the island and ensure that hunting does not threaten agricultural production in any way.

"... that people on Lastovo shall not have to pay any tax on the sale of fish they themselves eat."

The Lastovo Statute from 1495

"It has also been concluded that nowhere in the region of Blato and Žrnovo a winter pasture may be near a vineyard. In the region of Smokvica and Čara (it must not be closer) than 500 steps; those who act otherwise shall be punished with 25 perpers..."

The Korčula Statute from 1420

- * Proposed by: Ministry of Development and Reconstruction
- * In collaboration with: Ministry of Finance; Ministry of Economy; Ministry of Agriculture and Forestry; Ministry of Tourism; Ministry of Physical Planning, Building and Housing; Ministry of Justice
- * Additional costs at the national level: elaboration of studies
- * Additional costs at the county level: delimitation and registry
- * Financing: state budget resources earmarked for islands

11.1.7. Incentives for the development of fishing

Incentives for the development of fishing on islands are a part of the national fishing development measures. They can be divided into several groups:

a) Establishment of a Fishing Agency

- define the position and role of fishing as a provider of healthy and inexpensive food more clearly within the adopted Croatian Agricultural Development Policy

- establish a fishing agency within the Ministry of Agriculture and Forestry, in accordance with the Sea Fishing Act
- introduce a steady control of fishing
- continue the drafting of by-laws necessary for an integral implementation of the Sea Fishing Act, which will ensure a better protection and a more economical exploitation of maritime biological resources
- encourage the establishment of associations of fishermen, fish farmers and shellfish and fish traders
- complete the privatisation of all fishing companies, fish processing factories, fish farming companies and companies that catch and trade in fish
- pay more attention to the training of fishing experts and their employment in fishing, fish farming, processing and trade, administration, inspection and research

b) Fishing

- encourage the building of a certain number of ships in Croatian shipyards, primarily intended for the increase of the catch of pelagic fish
- put the price of fuel for fishing boats on the same level with that paid by fishermen in the European Union countries
- change the existing By-law on Subsidising the Price of Diesel Oil
- encourage the development of tourist fishing in order to enrich tourist supply

c) Fish and shellfish farming (mariculture)

- adopt measures for protecting the existing saltwater fish farming in accordance with the Act on the Incentives in Agriculture and Fishing (NN 9/95); these measures would increase the competitiveness of the Croatian fish on the European market. As the European fishing is subsidised, Croatian fishing does not have an equal status on that market
- create conditions similar to those under which fish and shellfish farmers in the European Union member countries work; on the basis of such conditions fish hatcheries and farms will be constructed as a series of family farms for the cultivation of fish and shellfish, particularly important for a sustainable development of Croatian islands
- define the areas and locations for the cultivation of fish and shellfish depending on whether a particular maritime property is suitable for the cultivation and in accordance with county physical plans

d) Processing

- encourage the technological modernisation of the fish processing factories and the restructuring of some of the existing production, for the purpose of preparation, marinating, production of dried and smoked fish, fish soups, fish salad, fish spreads etc.

e) Trade

- on the basis of the existing Trade Act, pass by-laws defining places for selling fish or exchanges with auction-rooms; the Government should support the construction of exchanges on the coast and in the interior of the country (within which fish traders will have their premises), after which the interested traders will organise collection and distribution posts, fish markets and other places for selling fish and other seafood
- conclude bilateral trade agreements with several EU countries in order to reduce high customs duties as they are now paid by the Croatian exporters of fresh fish and fish products
- obtain privileges for the Croatian exporters of fresh fish and fish products from the European Union

f) Fishing inspections

- as a matter of urgency accept the proposed organisation of a national fishing inspection in order to ensure the essential conditions for its better functioning

g) Reviewing the borders between fishing zones

- * Proposed and devised by: Fishing Agency of the Ministry of Agriculture and Forestry
 - * In collaboration with: Island Development Centre of the Ministry of Development and Reconstruction and the Ministry of Economy
 - * Financing: state budget resources earmarked for agriculture
- *****

11.2. Passage of and amendments to laws relevant to the island development

Together with the passage of the Islands Act, some of the existing laws relating to islands will be appropriately amended. The passage of some new laws will be proposed as well.

11.2.1. Amendments to the Concessions Act

Concessions policy in Croatia is regulated by the Concessions Act (Narodne novine (Official Gazette), No. 89/1992). Concessions policy in the tourist sector as a rule refers to the regulation of the right to use public land (including maritime public property and old city centres) as the main potential generator of a rent income. In the context of a long-term sustainable development of tourism on islands the Concessions Act should be amended so as to include three different kinds of concessions:

- concessions which are an integral part of the restructuring process (cleansing of portfolios) of the formerly socially owned firms,
- concession for the penetration into new parts of islands with no infrastructure, for which not only the municipality but also competent ministries must grant approval,
- concessions including areas of protected natural or cultural heritage on which, due to their extreme sensitivity, only the Croatian Government can decide.

The amendments to the Concessions Act should therefore be based on by-laws (with clearly defined norms and standards) which would integrally regulate the issue of concessions on islands.

11.2.2. Amendments to regulations which would simplify granting of authorisations and approvals for island investments

By amending regulations to simplify and shorten the procedure for granting investment authorisations, another institutional limitation to the island development will be removed.

Appropriate by-laws will be drafted on the basis of surveys and interviews with small and medium-scale island entrepreneurs and the analysis of the present situation.

11.2.3. Passage of an act on regular lines public transportation

Good communication links between islands and the mainland will be a major contribution to the main medium-term goal of the National Programme, i.e. putting the conditions on islands on the same level with those on the mainland. Beside completing port infrastructure, modernising the liner fleet and developing air traffic between islands and the mainland as quickly as possible, the institutional framework for the activity of shippers must be continuously developed.

Therefore, an act on public transportation on regular lines should be passed, taking into account the goals of the National Programme, and the obligations and the economic status of shippers should be defined; islanders position should be secured as favourable position as possible. The law will define:

- regular coastal lines as an integral system of freight and ferry transport and the transportation of passengers
- body, method and financial sources for the management of such a transportation system, so as to continuously improve and facilitate the traffic conditions for the island population and economy
- conditions for acquiring the right to provide and conditions for providing these services, based on the equality of all shippers
- position, subsidising and operating conditions of private shippers,
- criteria for granting concessions for these shipping services,
- lines or groups of lines for which concessions will be granted,
- guaranteed standards concerning the frequency and duration of passenger transportation between islands and the mainland, so as to ensure that in 7 years from the adoption of the Programme each inhabited island would have three lines to and from the mainland,
- financing the maintenance and development of regular lines in public transportation; agents, criteria,
- tariff system in public maritime transportation,
- co-financing of ferry tickets for islanders,
- free transport for pupils from islands.

The act on public transportation on regular lines should also define criteria for the pricing with special facilities for the islanders.

The Ministry of Maritime Affairs, Traffic and Communications, in collaboration with the Ministry of Development and Reconstruction and the Ministry of Tourism, is preparing a study on the "Development Policy for the Public Transportation of Passengers, Freight and Vehicles on Regular Lines in Internal Sea Waters and the Territorial Sea of the Republic of Croatia by the Year 2010". This study will be the basis for drafting the legislation aimed at rationalising, modernising and developing public transportation on regular lines in the internal sea waters and the territorial sea of Croatia. Beside the legal provisions, the study will include ship technology and technological concepts for the construction of island ferry ports. In this way possibilities will be created for granting concessions in public transportation on regular lines in the Adriatic Sea.

- * Proposed and worked out by: Ministry of Maritime Affairs, Traffic and Communications
- * In collaboration with: Ministry of Development and Reconstruction - Island Development Centre;
Ministry of Tourism

11.2.4. Passage of the Sea-bed Act

By passing the Sea-bed Act not only the protection but other conditions for the versatility of island households would be provided as well. The act would, among other things, define the conditions for underwater economic activities like professional and sport diving, diving tourism, seashell, coral and sponge diving. This would open new possibilities for the activities of an island household.

A pilot project of scuba diving, sponge and coral diving will be started on the Šibenik archipelago.

Proposed by: Ministry of Development and Reconstruction in collaboration with the Ministry of Culture; Ministry of Agriculture and Forestry; Ministry of Physical Planning, Building and Housing; Ministry of Economy and the Government Environmental Agency

11.3. Programmes for integral and sustainable exploitation of island resources, physical plans and scientific and professional documentation

An integral planning of sustainable development of islands will be achieved by amending the existing planning system. Beside the usual physical planning documents, programmes for full and sustainable exploitation of island resources will be devised. On the level of feasibility studies they will also contain alternative investment proposals. In this way these programmes will help the island local self-government to attract investors in the sustainable island development. The Islands Act will provide for the obligation to bring island physical plans in line with the programmes of full and sustainable exploitation of island resources.

11.3.1. Programmes of full and sustainable exploitation of island resources

A programme of full and sustainable exploitation will be made for each island and group of islands which makes a geographic and economic unit. The programmes will contain:

1. demographic analysis, employment and assessment of available work force
2. analysis of present exploitation of natural and man-made resources
3. state of infrastructure and superstructure
4. state of natural and cultural heritage
5. evaluation of the present state of development
6. criteria for the protection of heritage and a full and sustainable exploitation
7. external limitations
8. list and accessibility of arable plots of land and island pastures which have not been cultivated or used for pasture for five (5) years or the owner of which is unknown or inaccessible
9. list and condition of buildings which have not been used for twenty (20) years and the owner of which is unknown or inaccessible
10. agricultural and economic plan with the principles of agricultural development
11. principles of the development of tourism

12. principles of fishing development
13. principles of the development of other activities
14. principles of the development of education, health care and cultural activities
15. plan of necessary infrastructure
16. plan of a network of field and other lanes used in agriculture
17. possible varieties of full and sustainable exploitation of island resources
18. necessary investments for each possible variety
19. promotion of the Programme

Programmes of full and sustainable exploitation of island resources will be made for the following islands and groups of islands:

- ◆ Cres and Lošinj
- ◆ Unije, Male Srakane, Vele Srakane, Susak and Ilovik
- ◆ Krk, Košljun and Plavnik
- ◆ Prvić (Kvarner islands), Goli and Sv. Grgur
- ◆ Pag and the surrounding islands
- ◆ Rab and the surrounding islands
- ◆ Premuda, Silba and Olib
- ◆ Molat, Ist and Škarda
- ◆ Vir
- ◆ Ugljan, Ošljak, Rivanj and Sestrunj
- ◆ Iž and Rava
- ◆ Dugi otok and Zverinac
- ◆ Pašman, Babac and Vrgada
- ◆ Murter, Kornati, Žut, Sit and the surrounding islands
- ◆ Žirje, Kaprije, Kakan and the surrounding islands
- ◆ Prvić (Šibenik archipelago), Zlarin, Krapanj
- ◆ Veli Drvenik, Mali Drvenik
- ◆ Šolta
- ◆ Brač
- ◆ Hvar, Šćedro, Pakleni otoci and the surrounding islands
- ◆ Vis, Biševo, Sv. Andrija, Brusnik, Jabuka, Ravnik, Palagruža and the surrounding islands
- ◆ Korčula, Badija, Vrnik, Ošjak and the surrounding islands
- ◆ Pelješac peninsula
- ◆ Lastovo, Sušac, Lastovnjaci and the surrounding islands
- ◆ Mljet
- ◆ Šipan, Lopud, Koločep, Lokrum and the surrounding islands

Programmes of full and sustainable exploitation of island resources will be made using modern methodology of elaborating management plans for natural and cultural heritage and economic programming, for which a framework will be defined by a special by-law. Methodology of elaborating management plans for natural and cultural heritage will be defined on the basis of the recently adopted Plan of Environmental Management of the Cres and Lošinj Archipelago.

As pilot projects, programmes of full and sustainable exploitation of island resources will be made for Unije, Vele Srakane, Male Srakane, Susak and Ilovik, as well as for the Elafiti islands (Šipan, Koločep, Lopud, Lokrum and the surrounding islands).

"A bad habit of building lime and stone houses in various uninhabited bays of this island has been introduced recently. This disorder should be thought out because of the damage

it can cause to public interests. Therefore, in order to put an end to such irregularities, and referring to the old statutory provisions of this island, we want and explicitly order that the owners themselves tear down and destroy all the houses for which it is established that they have been built with lime and stone in the above mentioned uninhabited bays..."

The Lastovo Statute from 1735

*"...that from now on each house belonging to those who own land on Lastovo can hold 60 heads of small animals and that it must not hold more than that,...
...that each house may hold oxen, cows or draught animals, their number being limited to 8 heads."*

The Lastovo Statute from 1390

- * Initiated and elaborated by: Ministry of Development and Reconstruction
- * In collaboration by: Government Environmental Agency, Ministry of Physical Planning, Building and Housing - Physical Planning Institute, Ministry of Tourism, Ministry of Economy, Ministry of Agriculture and Forestry
- * Additional costs on the national level: elaboration of the Programme
- * Financing: state budget funds earmarked for islands, funds of international governmental and non-governmental organisations

11.3.2. Physical plan for special feature areas on the land and sea territory of Croatian islands

Regional plans of strategic nature are a part of the modern methodology of physical planning, especially when they relate to sensitive areas in terms of development and to areas with special features and values.

Since the territory and sea of the Croatian islands belong to the above areas according to all criteria, a special document, Plan of Special Feature Areas, will be worked out for them. This Plan will be in line with the National Physical Planning Strategy and Programme and will be a part of the Integral Management Plan for the Croatian Coastal Areas.

By following the principle of integral planning and sustainable development, the Plan will in the best possible way resolve important spatial conflicts between the elements of infrastructure systems which relate to the exploitation, zoning or protection of the island environment beyond the borders of local self-government and administration units. The Plan will be developed according to a defined content and method and will also contain an environmental policy consideration. All competent authorities dealing with the development of the Croatian Adriatic Sea will take part in the development of the Plan.

The results of and guidelines for physical planning contained in this Plan will be binding and will serve as guidelines for physical plans of the Adriatic counties. The Plan will also be the basis of other documents of more detailed physical planning and the documents to attract investments.

- * Worked out by: Ministry of Physical Planning, Building and Housing
- * In collaboration with: Ministry of Development and Reconstruction, Ministry of Economy, coastal and island counties
- * Additional costs at the national level: elaboration of documents
- * Financing: state budget funds earmarked for islands

11.3.3. Development of tourist marketing plans of action

Since islands deserve special treatment and their stage of development varies from island to island, it is necessary to start developing marketing plans of action for particular characteristic island groups (Zadar archipelago, Kornati, Elafiti etc.) or islands which are important in terms of tourism (Brač, Hvar, Korčula, Krk, Lošinj etc.) with a view to their quick market revival on the existing grounds.

These plans would for the most part be focused on creating specific island tourist products and securing their position on the market of tourist generating (mostly western) countries through efficient promotional activities.

- * Initiated by: Ministry of Development and Reconstruction and the Ministry of Tourism
- * Developed by: Ministry of Tourism, Croatian Tourist Board, regional and local tourist boards and the Institute for Tourism in Zagreb
- * Financing: state budget funds earmarked for the development of tourism

11.3.4. Supplementing deficient scientific and professional documents for the implementation of the National Programme

Scientific and professional documents for the implementation of the National Programme, which are in many ways incomplete, will be supplemented by the results of an interdisciplinary research project in collaboration with Croatian and foreign experts. The object of the project will be

- special development features of islands and specific analytical and development methodology applicable to islands
- combination of physical and economic planning in order to formulate a methodology of integral planning for island development
- methods of optimising the island economy and the use of space
- defining the islands as sustainable development areas (SDR) according to UNESCO methodology and formulating an appropriate territorial administrative organisation

Additional studies and analyses, needed to design specific development measures, will often have the nature of both applied and original scientific research, since the phenomenon of islands is very special and not sufficiently explored. Therefore a permanent co-operation with the Ministry of Science and Technology will be established. A pattern will be worked out under which scientific research of in the islands and regional research in general, and their results - which is all within the competence of the Ministry of Science - will be a basis for ordering applied studies, which will be within the competence of the Ministry of Development and Reconstruction. The content and forms of international scientific and professional co-operation in expanding the basis for the management of island development and of the co-operation with international governmental and non-governmental organisations to be addressed will be defined.

Among these tasks, special attention will be devoted to an information system for the scientific research of islands and the collection of data relevant to the implementation of the National Programme. The organisation of this system, the structure and extent of data to be collected and the existing systems and bases to be relied on will be defined in collaboration with respective ministries and government agencies. Tasks needed to establish the system will also be determined.

- * Initiated by: Ministry of Development and Reconstruction
- * Developed by: Ministry of Science and Technology
- * In collaboration with: Ministry of Physical Planning, Building and Housing - Physical Planning Institute; Ministry of Tourism; and the Ministry of Economy
- * Additional costs on the national level: research
- * Financing: funds regularly earmarked for science, state budget funds earmarked for islands, funds of international governmental and non-governmental organisations

11.4. National infrastructure and superstructure programmes

The goal of state programmes will be to put the island and the mainland conditions of investment, life and work on the same level. They will envisage the construction of island infrastructure and the improvement of superstructure within 7 to 15 years. The development, agents, implementation, control and financing will be defined by the Islands Act.

11.4.1. Water supply programme

The programme is aimed at securing each island settlement sufficient quantities of drinking water according to the usual standards. It will have the form of a subprogramme as a part of the existing water supply plans on the national level.

As the programme must take into account the specific position of islands in terms of water supply, special attention should be devoted to projects alternative to bringing the water from the mainland (desalinisers, isolated waterworks, rainwater collection).

A pilot desalinisation project will therefore be started on Lastovo.

- * Developed and implemented by: Croatian Water Management
- * In collaboration with: Government Water Authority and the Ministry of Development and Reconstruction
- * Additional costs on the national level: pilot project, network construction according to the programme
- * Financing: water management funds, credits of international monetary institutions, state budget funds earmarked for islands

11.4.2. Sewage system programme

The programme will be adopted because of the demand for high standards of coastal sea water purity in tourist resorts and other places. Its goal is the processing and purification of sewage in all island settlements. In the programme, the priority projects for the island tourist resorts will be specified.

In Vela Luka and Blato on the island of Korčula a pilot project for the processing and purification of sewage will be started.

- * Developed and implemented by: Croatian Water Management
- * In collaboration with: Government Water Agency and the Ministry of Development and Reconstruction
- * Additional costs at the national level: development of the programme, construction according to the programme
- * Financing: water management funds, credits of international monetary institutions, state budget funds earmarked for islands

11.4.3. Agricultural land irrigation programme

The programme will aim at utilising underground waters and rainwater in island agriculture. It will include the reconstruction of the existing and the construction of new tanks, the renewal of neglected pools, the use of geologic membranes, the purchase of irrigation systems (tax-free purchase of equipment or the co-financing of purchase) and the renewal of wells. The programme will be divided by particular islands.

In order to intensify agricultural production, the research of underground waters will be initiated and, where possible, an economic exploitation of these waters in agricultural production enabled.

The project of field irrigation on Dugi otok, which has already been partly implemented, will be supplemented and completed as a pilot project.

- * Developed by: Croatian Water Management
- * Implemented by: Croatian Water Management and investors in island agriculture
- * In collaboration with: Ministry of Agriculture and Forestry, Government Water Authority, Ministry of Development and Reconstruction
- * Additional costs on the national level: pilot project, construction according to the programmes for specific islands
- * Financing: state budget funds earmarked for islands and for the improvement of agriculture, credits, investors in island agriculture

11.4.4. Solid waste disposal programme

The programme will be adopted in order to maintain the high standard of the cleanness of the island land and underground and to protect the quality of the island landscape. It will elaborate a solid waste management system, according to which the waste is collected in transfer stations and taken to recycling stations with compost, where it is selected and recycled. The remaining waste is taken to the mainland to be burnt or placed on dumps. The existing dumps will be closed down and sanitised. The schedule and financing of the construction of the necessary facilities on the islands will be defined as well.

The programme will be adopted on the county level and will be divided into county programmes.

For the development of the programme the experience from and the methodology of the Study on Solid Waste Management in the areas of Kvarner and Istria, which includes Krk, Rab, Cres, Lošinj and the islands surrounding Lošinj, will be used. The study was developed in February 1996 by the Adriatic

Department of the Government Environmental Agency in collaboration with the European Investment Bank.

The most important goal of the programme is to sanitise dumps on all inhabited islands and regularly remove solid waste from small and scattered islands, especially from the Kornati National Park and the Telašćica park of nature.

"It has also been concluded that anyone who is cleaning his house or courtyard must not throw litter to a public site nor overfill it, especially in the city; he can only throw that litter outside of the city behind the city walls into the sea."

The Korčula Statute from 1403

- * Developed by: Government Environmental Agency, Ministry of Physical Planning, Building and Housing
- * Implemented by: the counties of Istria, Primorje-Gorski kotar, Lika-Senj, Zadar-Knin, Šibenik, Split-Dalmatia, Dubrovnik-Neretva
- * Additional costs at the national level: development of the programme, construction according to the programme
- * Financing: state budget funds earmarked for islands, county budget funds, credits of international monetary institutions

11.4.5. Sea and road communications programme

A systematical construction of island ports and roads began twenty years ago with the so-called substitution programme which replaced unprofitable regular lines with ferry links to the mainland. An appropriate national programme will provide for their further development. The programme will be based on the principle of the equality of all islands in terms of development being determined by their equality in traffic possibilities. In other words, each island must have such traffic infrastructure as to be linked to the mainland and other islands in a cost-effective way.

The national programme should, gradually and according to defined priorities, construct an optimally arranged network of ports and roads on the islands and all along the mainland coast, so that freight and ferry links as well as regular passenger lines are possible as links to various places on the mainland, with the neighbouring islands and with ports on the other side of the Adriatic.

According to an initial rough estimate, the programme for 42 islands and the Pelješac peninsula would include the construction or improvement of some 40 small and about 15 large ferry ports, between 200 and 300 km of island roads and 3 or 4 bridges.

A preliminary study would define the concept for the planning, organising and financing of the system of island ports and roads.

- * Developed by: Ministry of Maritime Affairs, Traffic and Communications in collaboration with the Government Roads Authority and the Ministry of Physical Planning, Building and Housing
- * Implemented by: Government Roads Authority, county roads agencies
- * In collaboration with: Ministry of Maritime Affairs, Traffic and Communications

- * Additional costs at the national level: development of the study, construction according to the programme
- * Financing: special funds of the Government Roads Agency, credits, state budget funds earmarked for islands

11.4.6. Programme of the modernisation of field and forest lanes

One of the main short-term goals of the National Programme is to make property accessible and thus enable the use of agricultural land. Therefore, a programme for modernising island field lanes will be developed. It will be co-ordinated with the forest lanes programme of the Croatian Forests so as to form a joint field and forest lanes programme.

It is estimated that there are between 5,000 and 7,000 km of lanes and paths, which linked all island agricultural resources in the past. These communications are now blocked with slides or vegetation. Many of them are too narrow for small agricultural machinery. After they have been cleared they will have to be slightly widened and their surface smoothed.

The first stage of the programme contains development of project documentation for optimising the network of field and forest lanes on each inhabited island and the subsequent fixing of 1,500 km of lanes on as many islands as possible.

Two islands will be taken for pilot projects: Iž, on which the field lanes network is for the most part modernised, and Veliki Drvenik, on which there are no such lanes at all, so that the island is virtually impassable. These networks will be modernised as soon as possible, after which the effects of the development will be observed and further measures for the development of agriculture adopted.

"We order the headman and the judges to reintroduce the lost book with the description of public and municipal lanes and to force all those who illegally take possession of those lanes to restore them."

The Lastovo Statute (entry between 1677 and 1695)

"It has also been concluded that the lanes on the island shall be repaired as the noblemen listed below order. If someone blocks or destroys these lanes, he shall pay a fine of five perpers and anyone shall be able to report him and get a half of the fine (paid) for that. A lane shall be at least a normal step wide.."

The Korčula Statute from 1403

- * Developed and implemented by: Ministry of Development and Reconstruction; Ministry of Physical Planning, Building and Housing; Croatian Forests Public Enterprise
- * In collaboration with: island and coastal towns and municipalities and county physical planning institutes
- * Collaboration at pilot projects: the County of Zadar-Knin and the County of Split-Dalmatia
- * Additional costs at the national level: development of programme documentation, a part of implementation costs
- * Additional costs at the county level: a part of modernisation costs on Iž and Veliki Drvenik

- * Financing: state budget funds earmarked for islands, budgets of island and coastal counties and local self-government units
- *****

11.4.7. Air traffic infrastructure programme

The goal of the programme is to harmonise air traffic with other kinds of island traffic and to improve communication links to the mainland.

The programme will define locations and technical details of airfields on inhabited islands, construction priorities in view of the goals of the National Programme and the infrastructure necessary for emergency helicopter transport. It will specify future island airports and heliports, the construction of which is in the national interest, and define the financing and construction schedule.

- * Developed and implemented by: Ministry of Maritime Affairs, Traffic and Communications
- * In collaboration with: Ministry of Physical Planning, Building and Housing
- * Additional costs on the national level: preparation of necessary studies, part of construction costs for priority airports
- * Financing: state budget funds earmarked for islands, credits of international monetary institutions

11.4.8. Electric power supply programme

The programme is necessary because the electric power supply of islands is very specific. Its goal is to provide constant and secure electric power supply to all island settlements. It will have the form of a subprogramme of the related nation-wide programmes.

Special attention will be given to the exploitation of wind and solar energy. On the islands which belong to a national park, appropriate pilot projects will be started.

- * Developed and implemented by: National Public Utility
- * In collaboration with: Ministry of Economy
- * Additional costs on the national level: development of the programme, construction according to the programme, pilot projects
- * Financing: electric power industry funds, state budget funds earmarked for islands, credits of international monetary institutions

11.4.9. Telecommunications development programme

The telecommunications development programme will be adopted in order to put the island development conditions on the same level with those of the mainland. The immediate goal is to include each island settlement in the Croatian telecommunications network. It will be in the form of a subprogramme of the

existing national programme of telecommunications development. The programme should prevent that works stop after the main cable is laid.

- * Developed and implemented by: Croatian Post and Telecommunications
- * In collaboration with: Ministry of Maritime Affairs, Traffic and Communications
- * Additional costs on the national level: development of a subprogramme, additional costs of network development, specified by the subprogramme
- * Financing: Croatian Post and Telecommunications, state budget funds earmarked for islands

11.4.10. Health care programme

The programme is needed because of the specific position of island health care services. It will include the following tasks:

1. development of the system, criteria and procedures for the use of ambulances to transport sick and injured persons from an island to bigger medical institutions elsewhere, and their organized accommodation and treatment; to this purpose a sufficient number of ambulances and special medical helicopters will be purchased and heliports built;
2. development of a telediagnostical system between isolated islands and medical institutions, especially for the islands with no medical staff;
3. development of a subprogramme for addressing social and health issues, particularly of elderly persons;
4. defining personnel standards and norms in health care services for both resident population and tourists, taking into account the size and population density of an island, age structure of its population, whether settlements are scattered and how far from medical institutions they lie;
5. stimulating the employment of medical personnel by providing homes and increasing salaries;
6. in the transformation process of the island medical centres - securing an integral and co-ordinated functioning of health services on an entire island, especially some such services (urgent medical interventions, emergency transport, epidemiological services, joint and more complex diagnostical and therapeutical procedures, health statistics etc.);
7. developing a project of surgery ships for Lošinj and its surrounding islands and the islands of Zadar and Šibenik, for health services which can be programmed and planned, like vaccination, complete check-ups, dental care, medical checks of diabetics, karyopaths, psychotics and other chronic patients;
8. defining the location and operation of dialysis centres on the Islands of Lošinj, Brač, Hvar and Korčula;
9. drafting a code of sanitary measures on highly developed tourist islands in accordance with the existing national laws and other regulations pertaining to health and environmental protection;
10. committing the Medical Faculties of Rijeka and Split to devise a special training programme for all those who work or intend to work on an island, relating to the specific organisation and operation of health care services on islands.

The project of a surgery ship will be devised for Lošinj and its surrounding islands and the islands of Zadar and Šibenik. For the islands of Zadar it will be devised as a pilot project, which will define the level of health services on the ship and the monitoring of results of health services organized in this way. A subprogramme for combating drug addiction among the island youth will be developed as well.

- * Initiated by: Ministry of Development and Reconstruction
- * Developed and implemented by: Ministry of Health
- * In collaboration with: Ministry of Education and Sports, Ministry of Culture, Ministry of Tourism
- * Additional costs on the national level: development of the programme, pilot project
- * Financing: state budget funds earmarked for islands, grants of international organisations

11.4.11. Primary and secondary school education programme

The programme is necessary because of the special situation in the primary school education on small islands with a small number of pupils. It will have the form of a syllabus which is partially implemented through means of telecommunication.

A pilot project, "Homeland Textbook", will be devised in order to inform pupils about the nature, history and the present day of their island or groups of islands. The tuition will be supplemented by tours of the island, lectures in the nature etc.

A pilot-project of a school on a ship will define educational and cultural events which would take place on the ship, thus enriching primary education on the islands of Zadar. Schooling on a small island will thus be a combination of a spoken word on the island, spoken word on a ship and information received by means of telecommunication.

An important principle of this new island education programme is that school buildings will be used again for education and culture and a teacher would always be present, whatever the number of pupils.

It is necessary to:

1. reorganise the network of primary schools and their regional classes and the network of secondary schools on islands;
2. define the necessary standards for the number of pupils in a class and school;
3. define the necessary criteria for the work of teachers, with sensitive financial and material incentives;
4. develop special and supplementary forms of organising and giving tuition for classes with a small number of pupils and classes comprising two or more grades.

- * Developed and implemented by: Ministry of Education and Sports, Ministry of Culture
- * Additional costs on the national level: pilot project
- * Financing: state budget funds earmarked for islands, county budgets, grants of international institutions

11.4.12. University education programme

The programme will initiate and elaborate a special university programme related to islands - their ecosystem, demography, economy, traffic etc. Co-operation with foreign universities offering such curricula and scientific institutes engaging in the research of islands will be established.

A special goal of the programme is to affirm the island environment *in situ*. To this purpose island camps and workshops will be organized, in which autochthonous forms of ethnographic heritage will be studied, observed and practised (small wood ship-building, making fishing tools, cheese production,

making things of wool, preparation and fencing of agricultural land, preparation and conservation of crops, special crafts, traditional sailing and rowing, diving etc.).

A pilot project for university educational activities on the island of Lokrum will be devised. Other islands and island settlements which are suitable for such activities will be examined and the possibility for their location defined.

- * Developed and implemented by: Ministry of Science, Ministry of Culture, Ministry of Development and Reconstruction
- * Financing: funds regularly earmarked for universities, state budget funds earmarked for islands, funds of international university programmes

11.4.13. Tradesmen training programme

This training programme should train young island tradesmen for high-quality production, business-like conduct and competitiveness in the market.

It will include training in traditional trades and their development and expansion with a view to create and promote local island and national features and include them in tourist activities.

The programme will also include a permanent education of the island entrepreneurs in high-level services and production through specialised consultants. It will provide entrepreneurs with business knowledge necessary for starting business operations and conducting trade.

- * Developed and implemented by: Ministry of Education and Sports and Ministry of Culture
- * In collaboration with: Ministry of Economy, Ministry of Tourism
- * Financing: state budget funds earmarked for islands, county budgets, grants of international organisations

11.4.14. Programme of incentives and support to tradesmen and small entrepreneurs

The programme should conceive a systematic support to island entrepreneurs through institutions and models like business information centres and brain pools for entrepreneurs and tradesmen, mobile or stationary. Their purpose is to co-ordinate business activities of entrepreneurs which should be supported, depending on their location and purpose. In this way entrepreneurs will receive professional and other assistance which will enable them to become independent as soon as possible.

- * Developed and implemented by: Ministry of Economy
- * In collaboration with: Ministry of Development and Reconstruction - Island Development Centre

11.4.15. Cultural development programme

The programme will include the reconstruction of infrastructure used for cultural activities (community centres, libraries, amateurs societies) and the encouraging of cultural programmes which promote varieties among the Croatian islands.

The programme will be co-ordinated with the pilot project of a school on a ship on which cultural events will take place (see 11.4.11).

- * Developed and implemented by: Ministry of Culture and Ministry of Education and Sports
- * In collaboration with: Ministry of Science and Technology, Ministry of Development and Reconstruction
- * Financing: state budget funds earmarked for islands, county budgets, international organisations

11.4.16. Natural and cultural heritage research, protection and conservation programme

Natural and cultural heritage of the Croatian islands will be studied, protected and conserved in accordance with the national system of natural and cultural heritage conservation. It will be based on the principle of active protection.

Due to their strategic position in the Adriatic Sea and their extreme ecological vulnerability, the exploitation of inhabited, uninhabited and lighthouse open-sea islands should be devoted special attention within this programme. Before the programme is adopted, unsustainable exploitation of their natural resources and architectural heritage will be prohibited.

A pilot project for the protection of Palagruža, Mala Palagruža and their surrounding islands and sea will be a priority. It will provide for an appropriate use of this unique area of the Republic of Croatia.

"It has also been concluded that no one shall dare to remove any stone or plate from any house in the city and on the island of Korčula; otherwise he shall pay a fine of five perpers and compensate the entire damage."

The Korčula Statute from 1402

- * Developed by: Ministry of Culture, Ministry of Development and Reconstruction
- * Implemented by: Ministry of Culture
- * Financing: funds regularly earmarked for the protection of natural and cultural heritage, state budget funds earmarked for island development

11.5. Activity of the Island Development Centre of the Ministry of Development and Reconstruction

The Ministry of Development and Reconstruction responsible for the implementation of the National Island Development Programme will, for its Island Development Centre determine the following development activities:

- initiate all activities of the national administration specified by the National Programme
- participate in drafting laws and regulations specified by the National Programme and follow and advance the procedure for their adoption and eventual implementation
- participate in elaboration of infrastructure and superstructure programs specified by the National program and follow and advance the procedure for their adoption and eventual implementation
- follow and analyse development impact of the Island Act and other acts, regulations and national programmes elaborated according to the National program and, on this basis, propose amendments
- co-ordinate activities of other ministries and government administration and relevant bodies of coastal and island counties concerning the National Programme
- follow elaboration of regulations, measures, programs and projects not included in the National program which may or might influence island development conditions and if necessary propose its co-ordination with the National Programme
- collect information for programmes essential to the island development from other ministries, state administrations and relevant bodies of coastal and island counties
- initiate and if necessary organise and finance the elaboration of program of full and sustainable use of resources of particular islands and island groups, and control their promotion and implementation
- organise and control elaboration of development documentation of particular islands and scientific and professional surveys and feasibility studies needed for the implementation of the National Programme
- co-ordinate local island development bodies with relevant ministries and administrations
- promote and represent development interests of the Croatian islands in international organisations and foundations
- develop a Plan of Action of the Republic of Croatia for the islands, which, on the basis of the National Programme and the Island Act will be proposed to the Government of the Republic of Croatia by the Ministry of Development and Reconstruction before adopting the budget for the following year.

The Plan of Action of activities of the Republic of Croatia for the islands for the following year will determine the funds of the Republic of Croatia earmarked for the islands which will be listed as a permanent budget item and include all government spending concerning the islands. Beside the investments in the necessary repairs and construction of infrastructure, this item will include subventions to shippers, expenditures for national programmes, elaboration of the program of integral and sustainable use of the island resources, subsidised loans to island investors and other expenditures arising from incentive measures.

A permanent consulting body will be provided for the Centre with knowledge on the island development needs and expectations. An Island Council will be established with the Ministry of Development and Reconstruction. The Minister of Development and Reconstruction will appoint 26 island representatives to the Island Council so that each island or group of islands is represented by one member: Elafiti, Mljet, Pelješac, Korčula, Lastovo, Vis-Biševo, Hvar, Brač, Šolta, Veli-Mali Drvenik, Žirje-Kaprije, Prvić-Zlarin-Krapanj, Murter-Kornati, Pašman-Vrgada, Ugljan-Rivanj-Sestrunj, Dugi otok-Zverinac, Iž-Rava, Molat-Ist-Škarda, Premuda-Silba-Olib, Lošinj, Unije-Susak-Ilovik, Cres, Krk, Rab, Pag i Vir.

The government of the Republic of Croatia will appoint relevant representatives of the Ministry of Finance; Ministry of Defence; Ministry of Maritime Affairs, Traffic and Communications; Ministry of Agriculture and Forestry; Ministry of Tourism; Ministry of Physical Planning, Building and Housing; Ministry of Health; Ministry of Education and Sports; Ministry of Culture; Ministry of Science and

Technology; Government Environmental Protection. The Croatian Chamber of Commerce and the Croatian Chamber of Handicrafts will have their representatives as well.

The Islands Centre of the Ministry of Development and Reconstruction will initially have 2 professional and one administrative employees. Their workplace will be in Zagreb and their job will be to initiate and control the implementation of the National Programme on the national government level.

In coastal and island counties, the Ministry of Development and Reconstruction will establish regional centres which in the beginning will have only one employee each. Their job will be to initiate and control the implementation of the National Programme on the county administration level. In the beginning, 9 people will work on the implementation of the National Programme on national and county levels. The Island Development Centre will, as required, sign on permanent and temporary external collaborators for the preparation and review of the island development documentation.

- * Additional costs on the national level: 3 new openings in the Ministry of Development and Reconstruction
- * Additional costs on the county level: one opening in each of the 6 coastal and island counties
- * Financing: state budget funds earmarked for the island development
