

SICENTER

Socio-economic Indicators Center

Ljubljana, Slovenia

SYSTEM OF AGGREGATE DEVELOPMENT INDICATORS FOR MONITORING STRATEGY OF ECONOMIC DEVELOPMENT OF SLOVENIA

SUMMARY OF THE FINAL REPORT

Contract No. V5-0378-00

Targeted Research Program

Foundations of the Strategy of Economic Development

Project leader

Professor Pavle SICHERL

Ljubljana, May 2001

Pavle.Sicherl@sicenter.si

THE PURPOSE, PROCEDURES AND PRESENTATION OF THE PROJECT

The main purpose of introducing the proposed indicator system is to satisfy the four basic requirements:

1. To improve decision-making, monitoring and evaluating in order to achieve social objectives with greater efficiency and competitiveness.
2. To achieve greater transparency and democratisation in decision-making.
3. To bring the practice into line with the practice of the EU.
4. To present Slovenia to foreign partners and public.

There are two sides to the process of introducing the system of indicators: the technical one, where high international standards must be followed, and the political one, where it must be made certain that priorities are set in a transparent manner and that the public can be involved in the evaluation of the achieved results. The same goes for a broader approach concerning the use of indicators in development planning (Sicherl, Vahčič, 1999), where additional arguments are available. The role of the system of aggregate development indicators for monitoring (SADIM) Strategy of Economic development of Slovenia (SEDS), in relation to other indicator systems, is to ensure the consistency and the overall perspective. Therefore, this system has to concentrate on those elements that are specific for this purpose in order to provide the necessary elements for an overall picture of development and thus a starting point for more disaggregated systems of indicators. Many countries and international organisations devote a great deal of attention to the development and the use of indicator systems so that they can discuss development issues and monitor the realization of policy decisions. In the EU, benchmarking and monitoring are being developed and introduced as standard methodology in many fields and on different levels. Monitoring can be defined as uninterrupted and systematic collecting, analysing and use of information for the purpose of management and decision-making. The conceptual basis of the SEDS monitoring system is different: it has a long-term time perspective; it is designed from a viewpoint of the society as a whole, and opts for a sustainable development that is steady and balanced (with taking into account the economic, social and environmental characteristics of the development). The aggregate system of development indicators for monitoring SEDS is based on our development objectives that were presented in the March 2001 proposal for SEDS. This stage of the project deals with the methodology of the aggregate system of indicators, the detailed definition and quantification of which were, however, not included – they are to be dealt with in the next stages of the project.

Three main sources were used while preparing the proposal for the first set of indicators: the text of SEDS provided the content, the selected literature supplied the theoretical basis, general principles and experience with sustainable development indicator systems while activities of the EU regarding indicator systems supplied additional material, particularly the system of structural indicators for a synthetic report to the European Council. The project was carried out with constant involvement of Institute for Macroeconomic Analysis and Development (IMAD). In this way, continual dialogue took place while conceiving the indicator system. This dialogue is expected to go on while preparing the final versions of the SEDS.

According to an agreement and based on the scheme outlined by the Sicenter, Bojan Radej, MA, prepared a detailed draft for the evaluation questionnaire (development of the two questionnaire forms involved also: Janez Šušteršič, Ph.D., Ana Murn, MA, and Alenka

Kajzer, Ph.D.) that were used for gathering opinions of the 15 horizontal coordinators of IMAD about the indicator system and about certain technical issues in introducing the system. The answers to the questionnaires were processed in Sicercenter by Matija Remec. Detailed results of the questionnaire can be found in Part V of the study, entitled *A special work appendix for IMAD* (partly in printed and partly in electronic form). The cooperation continued and Bojan Radej prepared a draft of the methodological sheet, which turned out much lengthier than similar methodological sheets that deal almost exclusively with data about databases.

Part III demonstrates the use of the time distance method in presenting the results of the aggregate system and in dealing with development issues, especially with the relationship between growth and inequality, including also ideas for using this method in a broader, European context. These materials were prepared in English and handed in to the EU Commissioner of the DG Research, Mr Philippe Busquin, by the director of the Slovenian Business and Research Association in Brussels, Boris Cizelj, Ph.D. The purpose of these papers was, firstly, to provide an additional presentation tool with the help of which it was possible to dramatise the need for an increase in R&D funds in Europe. Secondly, this method can also be used as an additional method and insight for several other fields of the work of the European Commission, such as benchmarking and monitoring. The Ministry of Education, Science and Sport and the Ministry of Information Society found these materials very useful. For practical reasons these two materials and some diagrams in the study appear in English so that our institutions can use them directly in their discussions with foreign partners.

The manner of presentation is of great importance for the aggregate indicator system for monitoring SEDS if the above-mentioned basic purposes are to be accomplished. The indicator system is supposed to be a useful instrument for discussing development issues and for achieving the consensus of the society about development strategy and partnership for development. The sketch below illustrates the basic scheme of the aggregate indicator system for monitoring SEDS. The characteristics of the process presented in the scheme are to continually analyse the situation, improve the system and take any necessary corrective measures. After getting to the end of the process, we may repeat the process on the basis of the current evaluation of the situation and decisions about required measures. The first two levels in the scheme are related to the approach of preparing the first selection of indicators for SADIM as an open system, subject to further improvements. These elements are presented in the first four sections of Part I. The issues related to the presentation mode should be discussed together with the discussions about the major aims of use of the indicator system and with the preparation and structure of the indicator base (all of which are dealt with also in Part II).

On the left and on the right side of the scheme there are two driving forces (users and producers) that influence the possible modes of presenting results of the aggregate system of indicators for monitoring SEDS: potential users on one side, and the attained level of operational preparation of the desirable indicator system, on the other side. The joint effect of the motivation of the first and the possibilities provided by the latter is demonstrated in the use of the indicator system, not only in analysis and discussion, but also by the feedback and policy response. The synergy of both sides is what enhances the social usefulness of such an indicator system.

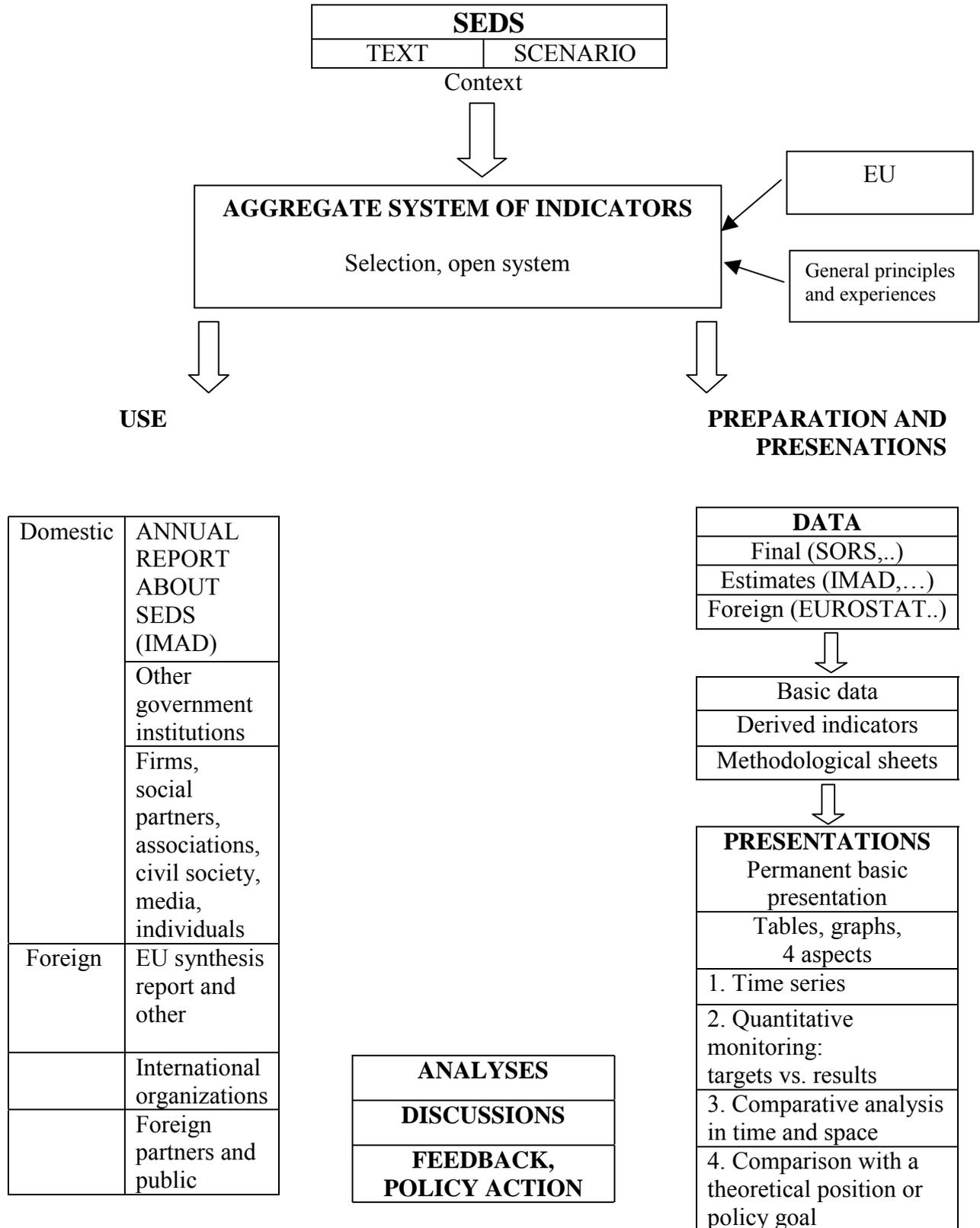
The illustrative list of users on the left side of the scheme shows that the aggregate system of indicators for monitoring SEDS surpasses the principal task to serve as the basis for the

annual report of IMAD about the realization of SEDS, the purpose of which is to provide the foundation for the assessment of results and efficiency of development and for the necessary corrections. This professional and systematic report prepared regularly by IMAD, as a government institute describing the direction and the realization of SEDS with policy suggestions is only one major use of the indicator system. However, the intention should doubtlessly be broader, that is to make the results of the SADIM accessible to all kinds of users – to researchers, civil society, students for their seminar papers and to everybody else concerned, i.e. interested users at home and abroad. The database and the basic outline of the comparative analysis should also be available in English. The information and the initial analysis should be published on a web site, thus accessible to everybody free of charge. Such a database on a web site can serve to different users according to their needs and intentions as the basis for all kinds of complex analysis, on the one hand, but also as immediate information to a broad spectrum of users.

At this point the question arises, what should the standard forms for presenting individual elements and results look like. This is a dilemma that occurs also with all indicator systems of international organisations. With these indicator systems one has to choose between a free access and a pay-access. The choice one makes at this point may limit further decisions to a great extent. This has been discussed before and in our case we should anticipate the necessary administrative steps in order to make the access free of charge. We should also distinguish between the basic data and the derived indicators mentioned in the set of the aggregate system indicators. While the basic data and the many specifications of the derived indicators are mainly the domain and the responsibility of the particular statistical offices and departments (e.g. the number of inhabitants and the value of GDP in case of the indicator GDP per capita), the preliminary evaluations, projections and special standard presentations remain in the domain of other organisations. This is the first systematic step towards various detailed analyses and discussions. Here the question arises, what should IMAD additionally offer (apart from the proposed annual report about the implementation of SEDS) within the framework of the presentation of SADIM.

A system of indicators cannot act as a substitute for a qualitative analysis of phenomena and relationships, but it can serve as an important instrument and also as an initial step in such analysis. Values of indicators already provide some information on the basis of which we create our initial perception according to our subjective model. However, these values get an additional meaning by the use of comparative analysis. There are four basic ways of comparing values of indicators: 1. comparing values in a time series for Slovenia, 2. comparing the realized value with the projected value, 3. comparing values for Slovenia with values for other countries in time and space, 4. comparing the realized value with an ideal or prescribed value. In the subsequent stages of the project some or all these basic comparisons could be added to the database according to their relevance for individual indicators, regularly updated on the website and in this way made available to the general public.

Much more work will be needed before we can decide which of the above mentioned comparisons – when all the necessary information is gathered – are relevant for certain indicators, how these comparisons should be formulated and what computer systems should be used for presentation. Nevertheless, this process should considerably improve the usefulness and the rate of the dissemination of the aggregate system results. That is why we must devote special attention to this process in the next stage of the project.



The process of collecting, analysing and synthesizing information, relevant for the development strategy, is a demanding long-term process where one must constantly improve decision-making and policy response, prepare new relevant indicators and their statistical basis and work on the methodology of the analysis and presentation.

It would not make much sense at this point to discuss the technical characteristics of possible ways of presentation of the aggregate indicator system in great detail because it can be best developed together with the methodological sheets and testing it on already acquired numerical values of the indicators and their estimates or projections. We can present indicators in two basic ways. The first one are the already mentioned four types of comparison for a single indicator; the second one is the comparison between various indicators. The first form of comparisons could be added as a regular basic presentation, taking into account the relevance in the case of a particular indicator. The second form of comparisons is less frequently adopted as standard (e.g. the country profiles according to the deviations with respect to the factors of competitiveness in the IMD World Competitiveness Yearbook, or the case of time distances and percent differences between Slovenia and EU15 or between the USA, EU15 and Japan – Part III of this study) and would have to be discussed together with the considerations about the form of the yearly report.

Nevertheless, we can illustrate some presentation forms for comparisons for a singular indicator. The comparison of values in a time series for Slovenia is clear. An example of comparison between the realized and the projected value is given in section IIIA, item 1.2; differences in percentage and absolute differences do not require further explanation. The comparison of Slovenia with other countries in time and space is supposed to consist of three elements: the static difference, the time difference and the growth rate. The principal focus will be on the comparison with EU countries and once our specifications are in line with the structural indicators of EU, we will automatically have the set of values for these countries at our disposal and we will be able to compare those with the ones for Slovenia without having to collect data about EU countries on our own. If the EU decides to publish the original absolute values of indicators, we will be able to use also – according to relevance – the information about the growth rate. In the section IIIA, item 1.2 there is an example on how to use time distance measurement, both for assessing the present situation of Slovenia and also for the assessment, what would the projected values mean for the expected time distance. The fourth way of comparison, i.e. the comparison of the realized value with an ideal or prescribed value is not relevant for most indicators; an example for this comparison can be the degree of pollution according to the maximally allowed degree of concentration. The essential elements of a possible structure of presenting the aggregate indicator system have been given. However, much more work and knowledge will be necessary for the practical application – here IMAD will have to find solutions for many dilemmas that occur with similar systems of international organisations, i.e. the decisions concerning the coverage, clarity and effectiveness.

THE BASIC CONCLUSIONS REGARDING GENERAL PRINCIPLES AND EXPERIENCE WITH THE PREPARATION OF AN INDICATOR SYSTEM

1. External conditions (economic, social, political and environmental) change. Our experience and modifications in objectives continually demand additional changes in the development policy. It is therefore clear that the system of indicators will also have to be continually developed and extended.
2. It is relatively easy to enumerate the desired characteristics of individual indicators and of the indicator system but it is very difficult to put them into practice. Nevertheless, these elements represent important general guidelines on how to develop a system of indicators.
3. Indicators have a well-defined purpose. They represent a part of the stream of information that helps us understand the events and use this information in planning and decision-making. As there are many various uses of indicators for decision-

making, it is important to define the specific purpose, the level of aggregation and the hierarchy of indicators for every indicator system.

4. Indicators are a partial reflection of the reality of a very complex system that we want to observe and influence. As our realizations about interrelationships in the economy, society and nature are very limited, it is clear that there are very diverse interpretations of the meaning of indicators for assessing the situation and about the possible effects of certain policy measures. Various views of the world, ethical views, cultural differences, on one side and theoretical models and practical procedures, on the other side together with personal preferences clearly indicate that differences in the interpretation of importance and meaning of quantitative and qualitative changes in the values of particular indicators are very probable.
5. Therefore we can expect diverse opinions from individuals and groups about the relevance and importance of indicators for specific purposes. We have to bear in mind that a particular indicator can be used for analysing events with respect to several goals and that the realization of a given goal can be observed by the help of several indicators. That is why it is not enough in the evolutionary process of choosing SADIM to consider only the problems of the initial selection of indicators but also some problems of the following stages, i.e. the quantification, analysis, presentation and broad dissemination of indicators. Feedback information and opinions about this process will serve as additional help in improving the aggregate indicator system.
6. One of the important aims of introducing SADIM is to make the decision-making in the society transparent and democratic and to help the general public to evaluate the results of the development and judge the need for changes. The report on sustainable development for the USA points out that information in voluminous books of statistical tables, piles of printed material and databases in government computers, is not easily accessible nor properly utilized. That is why we have to develop additional simplified format for presentation and informing that would help all layers of society to make decisions on the basis of this information. Such performance indicators can also function as powerful tools for measuring the progress according to the objectives of the society. They would enable the public and those responsible for the development policy to determine whether the policies are working and whether the society is moving in the right direction. Such a presentation should also be prepared according to international standards and criteria and not according to the conceptions of domestic political parties. Creating such an image of Slovenia is a lengthy process that is necessary especially for solving our development problems.
7. There are several criteria for classifying indicators. Most important ones for the aggregate indicator system are: 1. the level of aggregation, 2. the hierarchy of indicators according to various goals and means and 3. several layers of indicators for a specific purpose of the analysis. The level of aggregation for the aggregate indicator system is the country as a whole. To illustrate the possible hierarchy of indicators according to various goals and means we can mention the Daly's triangle of final aims (prosperity), intermediate aims (e.g. human and social resources), intermediate means (e.g. material and non-material resources) and final means (natural resources). To illustrate the connection between several layers of indicators according to the relevance for analysis and development policy we can mention the classification of various indicator layers as presented by the European Economic Policy Committee. The manner of designing the first layer of indicators (as indicators of SADIM) together with important supplements equals the first layer of structural

indicators of EU for the preparation of the synthetic report for the European Council meeting in Stockholm in March 2001.

8. There are, of course, several other criteria for classifying indicators. Firstly, there is the division into input, output and impact indicators. Secondly, in the field of environmental indicators we use the classification into the indicators of pressures, states and responses of the society. Thirdly, one of the important divisions according to technical characteristics is the one into stock and flow indicators. Fourthly, according to the interrelationship of the purpose and the precision of quantification of an indicator it is useful to divide indicators into those that measure a specific phenomenon, those that are correlated to one and those that represent an approximation of one. Fifthly, it is useful also to classify indicators into those that can be objectively verified and those that reflect subjective opinions and points of view. This division is also referred to as the division into "hard" and "soft" indicators.
9. These and similar classifications of indicators are important for the process of choosing indicators for specific purposes, but also when analysing and interpreting these indicators. However, feedback relations in a complex reality are much too interwoven and so we cannot describe such systematisations as very precise or with great explanatory power. For instance, human and social capital may function at the same time as the goal and the means, partly also as an intermediate goal and an intermediate result.
10. The indicator system cannot act as a substitute for qualitative analysis of phenomena and relationships, however, it can function as an important tool and also as an initial stage in such analysis. The values of indicators already provide some information on the basis of which we create our initial perception according to our subjective model. However, these values get an additional meaning by the use of comparative analysis. There are four basic ways of comparing values of indicators: 1. comparing values in a time series for Slovenia, 2. comparing the realized value with the projected value, 3. comparing values for Slovenia with values for other countries in time and space, 4. comparing the realized value with an ideal or prescribed value.
11. In the subsequent stages of the project some or all these basic comparisons could be added to the database according to their relevance for individual indicators, regularly updated on the website and in this way made available to the general public. The main purpose is to make the results of SADIM accessible to all kinds of users – to researchers, civil society, students for their seminar papers and to everybody else concerned, i.e. interested users at home and abroad. The database and the basic outline of the comparative analysis should also be available in English. The information and the initial analysis should be published on a web site, thus accessible to everybody free of charge. Such a database on a web site can serve to different users according to their needs and intentions as the basis for all kinds of complex analysis.
12. It is not only the number of indicators (which has to be limited in the first layer) that matters, but also the quality and quantity of information that is provided by the given set of indicators. It is important for the assessment of the situation and for decision-making that we see the values of indicators from as many perspectives as possible. Part III presents the use of the time distance method for comparative analysis of indicators. This method adds new significant views from existing data and new practical and theoretical conclusions to the information provided by the standard methods of comparative analysis. The use of this method for analysing differences between the EU, the USA and Japan indicates that this method could serve as our

contribution to the methodology of comparisons in the EU, especially for benchmarking and monitoring in many fields of the EU.

13. The annual report about the implementation of SEDS will be the responsibility of IMAD who will decide also about the form of this report and about the final selection of indicators for monitoring SEDS. Together with the Statistical Office of the Republic of Slovenia (SORS) and various ministries IMAD will report to the public the implementation of the directions, patterns and the quality of development according to proclaimed aims and changes in the world. The above-mentioned orientation for a further development of SADIM is supposed to additionally increase the transparency of the achieved results for the public at home and abroad.
14. We cannot expect that the first attempt of an aggregate indicator system will be satisfactory, which means that we have to start the process immediately and to improve it permanently.
15. The development is above all a process of learning. The same is true for indicator systems. It is all about continuous changes that should bring about possible improvements but at the same time preserve the long-term perspective that is called for by the goal of sustainable development.

THE PROPOSAL FOR AN INITIAL BROADER SELECTION OF INDICATORS

The purpose of this part of the report is to link the work on this project with the work of IMAD and from these two contributions prepare a proposal for an initial broader set of indicators that would ultimately help – as one of the results of this project – IMAD to decide for the first set of indicators of the aggregate system for monitoring SEDS. Our task was to prepare – from the above-mentioned inputs – a consistent expanded proposal for the selection of indicators that is referred to as Selection Sicerter 1. In other parts of the report (see Part II and *A Special Work Appendix for IMAD*) it is described in detail how, according to the general idea of Sicerter, IMAD gathered the opinions on the relevance and technical feasibility of indicators among the horizontal coordinators within IMAD. The opinions of the coordinators were, of course, taken in to account in the selection of the Sicerter. However, this selection is not based on quantitative outcome of the coordinators' opinions but it represents the general stand of the Sicerter and therefore a professional stand that will need to be evaluated and corrected by IMAD on the basis of its criteria.

In the following table there is a list of proposed indicators in two parts. The first part (broader selection consisting of 60 indicators) represents the proposal that could be shortened in the following year according to the priorities of coordinators responsible for the respective fields of concern. Respectively, some indicators could be replaced by other indicators if the horizontal coordinators considered that these would be more important than the selected and the technically feasible indicators. The second part of the list comprises of partial synthetic indicators, which are the result of established international comparisons carried out by international organisations and international research institutes. The meaning of the second part of the list is that these international comparisons – irrespective of our indicator system – have an impact on the opinion about Slovenia in the mind map of the world public and in economic and professional circles.

Table I.4.1.1 Selection SICENTER 1

No.	First part of the list (1-36) Indicator	Dimensions of development			Labels for structural indicators EU, 7.3.2001	Proposer of additional indicator
		economic	social	environment		
1	GDP per capita	1			a1	
2	Real GDP growth rates	1			a2	
3	Labour productivity (per employee)	1			c1	
4	Labour productivity (per hour worked)	1			c2	
5	Inflation rate	1			d	
6	Public balance	1			f	See f in IMAD4
7	General government gross debt as percentage of GDP	1			g	IMAD4, IMAD2,
8	Gross foreign debt as percentage of GDP	1				IMAD4, IMAD2,
9	Balance of payments	1				IMAD4
10	Growth of real unit labour costs	1	1		e	IMAD2
11	Export per capita	1				Sicherl
12	Share of fixed investment in GDP	1				Sicherl
13	Share of fixed infrastructure investment in GDP	1				IMAD13, IMAD14,
14	Stock of direct foreign investment in GDP	1				IMAD2
15	Employment rate	1	1		I.1	
16	Female employment rate		1		I.3.1	
17	Male employment rate		1		I.3.2	
18	Employment rate of older workers		1		I.4.1	
19	Unemployment rate		1		I.5.1	
20	Female unemployment rate		1		I.5.2	
21	Male unemployment rate		1		I.5.3	
22	Youth unemployment rate		1			IMAD2
23	Long-term unemployment rate		1		IV.7	
24	Life-long learning	1	1		I.7	I.7 def., IMAD7
25	Life expectancy (female)		1			Sicherl
26	Life expectancy (male)		1			Sicherl
27	Infant survival rate		1			Sicherl
28	Share of population with university education	1	1			Sicherl
29	Share of population with secondary education	1	1			Sicherl
30	Public expenditure on education	1	1		II.1	
31	R&D expenditure (BERD and public R&D)	1			II.2	
32	R&D personnel per 1000 inhabitants	1				IMAD1
33	Level of Internet access	1	1		II.4	
34	Internet hosts per 10000 inhabitants	1				Sicherl
35	Telephones per 100 inhabitants	1	1			IMAD10, Sicherl
36	Indicator of changed programs	1				IMAD1
37	Price of telecommunications-local call	1			III.4.1.1	
38	Price of telecommunications-national call	1			III.4.1.2	
39	Price of telecommunications-call to USA	1			III.4.1.3	

No.	First part of the list (40-60)	Dimensions of development			Labels for structural indicators EU, 7.3.2001	Proposer of additional indicator
		economic	social	environment		
40	Electricity prices (industry users)	1		1	III.4.2.1	IMAD6
41	Electricity prices (households)	1			III.4.2.2	
42	Value of public procurement tenders	1			III.5.2	IMAD5
43	Sector and ad hoc State aid	1			III.6	
44	Distribution of income		1		IV.1	
45	Poverty rate before and after social transfers		1		IV.2	
46	Persistence of poverty		1		IV.3	
47	Jobless households		1		IV.4	
48	Interregional variation in GDP per capita	1	1			
49	Variation in unemployment rate across region		1		IV.5	
50	Early school leavers	1	1		IV.6	
51	Energy intensity of the economy	1		1	b	
52	Expenditure on environment protection			1		IMAD6
53	Water quality			1		Sicherl
54	Intensity of exports of goods in terms of natural sources			1		IMAD6
55	Share of value added of unclean industries			1		IMAD6
56	Share of road transport in total transport of goods			1		IMAD6
57	Share of utilisation of renewable sources			1		IMAD6
58	Intensity of cultivating wood			1		IMAD6
59	Concentration of pollution in urban areas			1		Sicherl, IMAD6
60	Retail price of gasoline			1		IMAD6
	Number of indicators	35	26	11	34	
	Without double counting, together 60	30	20	10		

Selection SICENTER 1 (second part of the list)

Position of Slovenia in international comparisons of partial synthetic indicators		
No.	Indicator	Proposer of additional indicator
61	Human development index	IMAD15, Sicherl
62	Index of genuine savings	IMAD6, Sicherl
63	Indicator of national competitiveness (IMD)	IMAD12, Sicherl
64	Rank for domestic economy (IMD)	IMAD12, Sicherl
65	Rank for category people (IMD)	IMAD12, Sicherl
66	Rank for infrastructure (IMD)	IMAD12, Sicherl
67	Rank for management (IMD)	IMAD12, Sicherl
68	Rank for science and technology (IMD)	IMAD12, Sicherl
69	Rank for finance (IMD)	IMAD12, Sicherl
70	Rank for internationalisation (IMD)	IMAD12, Sicherl
71	Rank for category government (IMD)	IMAD12, Sicherl
72	Country risk index	IMAD12, Sicherl
73	Economic freedom index	IMAD12

The first central part of the list is additionally provided with three elements. Firstly, there are dimensions of development (social, economic and environmental) – stressed by SEDS – to which an indicator is mainly related. This evaluation will, of course, be subject to the assessment of horizontal coordinators. We must mention here that the three columns with dimensions of development can be further disaggregated into detailed aims, i.e. mechanisms of development policy. While examining the opinions of the horizontal coordinators it turned out that some of them suggested more precise connections with specific parts of SEDS. However, the manner of gathering opinions in IMAD was not exact enough so that we could prepare further disaggregation in this stage of the project.

Secondly, individual indicators are marked with a label used for this indicator in the list of structural indicators for the synthetic report to the European Council in Stockholm, according to the document dated March 7th 2001 (Commission of the European Communities, 2001a). This label makes it possible to make a quick comparison in the sense of how many given structural indicators of the EU could be included – according to opinions of horizontal coordinators of IMAD and of the Sicenter – in the first broader set of indicators for monitoring SEDS. At the same time these labels enable us to make – after IMAD has decided about the indicators for the first stage – a matrix presentation of the two classifications of indicators: IMAD (economic, social, environmental) and the EU structural indicators (general economic indicators, employment, innovations and research, economic reform and social cohesion).

Thirdly, according to opinions of horizontal coordinators, additional indicators that reflect the requirements of SEDS (or some other desired elements of strategy and theory of development) were added to the list of relevant and technically feasible indicators. In the column "Proposer" there is a code of the horizontal coordinator of IMAD who suggested the additional indicator or it is stated that the additional indicator was suggested by Sicenter. In some cases the suggestions for additional indicators are identical with the expansion of the list of structural indicators of the EU from the first outline of the indicator set to the version for the meeting in Stockholm in March 2001.

GATHERING OPINIONS ABOUT RELEVANCE AND TECHNICAL FEASIBILITY OF STRUCTURAL INDICATORS OF THE EU, SUGGESTIONS FOR ADDITIONAL INDICATORS AND METHODOLOGICAL SHEETS

IMAD and Sicenter resolved to gather opinions of the horizontal coordinators of IMAD about individual elements of the indicator system already at this stage of the project. This way of working helped to ensure that the dialogue in conceiving the aggregate indicator system would go on also while preparing the final versions of the SEDS. At the last meeting in IMAD we settled for the following classification of indicators into groups: economic indicators, social indicators, environmental indicators and indicators of competitiveness. We also agreed that the long-term orientation of our system is to conform to the already mentioned EU system for a synthetic report to the European Council but, of course, our priorities are based on the final version of SEDS. Sicenter suggested that the opinions of the horizontal coordinators of IMAD should be examined from two perspectives.

In the outline scheme for the first perspective two matrices were given connecting the five groups of EU domains with the four groups of the classification of IMAD. The first table asked horizontal coordinators to mark with number 1 those indicators from the EU set (for the synthetic report) that they would like to see included in one of the columns in the IMAD

division. It was expected that the horizontal coordinators provide their opinions at least on those indicators that belong to their respective fields. Of course they could give their opinions on any other field as well. The criteria relevant for the second table, where the selection is not only guided by the suitability and the importance of an indicator, were focused rather on feasibility with respect to the operational use, i.e. on the possibility of including it immediately in the this year's set of indicators. Therefore the purpose of this table was to examine – together with the opinions expressed in the first table – the notional and operative degree of agreement between the EU set and the opinions of IMAD experts. The second perspective was supposed to analyse the connection of individual indicators with the aims and mechanisms of the strategy. The coordinators for specific fields were supposed to rank the indicators according to the importance they assigned to these. They were also asked to complete the list with any other indicators that they considered important (also apart from the structural indicators of EU).

In this way IMAD further developed the outline scheme into several elements that are either derived from the aims of SEDS or from the decisions of IMAD about the technical feasibility for individual indicators in the first year. In the appendix of Part II one can find instructions for filling in the two evaluation questionnaires (IMAD, March 23, 2001) and detailed forms that were to be filled in by horizontal coordinators of IMAD. Both appendices were prepared by Bojan Radej with the cooperation of Janez Šušteršič, Ana Murn and Alenka Kajzer.

Horizontal coordinators answered questions about the relevance and the technical feasibility of indicators about the set of structural indicators of EU. The first questionnaire entitled 'Assessing the relevance of the proposal about monitoring the realization of SEDS' (marked in tables with a "D") consists of 11 questions, divided into four groups according to: 1. whether the indicator denotes a change in welfare; 2. whether the indicator denotes the need for a new development paradigm according to: a) the conclusion of the transition period, b) entering the EU, c) the internationalisation and globalisation, d) the integral definition of goals; 3. whether the indicator indicates the implementation of the direction for one of the mechanisms for realizing the strategy: a) macroeconomic stabilization, b) learning society, c) competitiveness of the economy, d) efficiency of the state, e) steady regional and balanced spatial development; 4. whether the indicator represents the fulfilment of two fundamental conditions for the efficiency of SEDS (capacity of the government for implementing SEDS and for achieving the social consensus for the development).

The second questionnaire entitled 'Assessing the technical feasibility for proposed indicators' (marked in tables with an "F") also consists of 11 questions. They were divided into six groups according to: 1. whether IMAD already uses it for monitoring; 2. the international comparability: a) the EU, b) others; 3. availability of primary sources: a) official publications, b) information on request; 4. whether IMAD is already equipped to deal with the proposed indicator with respect to: a) personnel, b) data, c) estimates, d) projections; 5. whether the methodology has already been presented in the publication of IMAD; 6. whether the proposal has been agreed upon with the relevant person in IMAD.

Table I.4.2.1 Opinion of horizontal coordinators of IMAD about EU structural indicators

No.	Indicator	Sum D + F	Sum D 1	Sum D 2	Sum D 1+2	Sum F
1	GDP per capita (ppp) and real GDP growth rates	13.4	2.2	2.6	4.8	7.4
2	Labour productivity (per employee and per hour worked)	16.3	3.5	4.3	7.8	7.0
3	Inflation rate	14.8	2.5	2.3	4.8	9.0
4	Public balance, cyclically adjusted	16.1	2.9	3.8	6.7	8.0
5	Employment rate	15.2	1.2	3.2	4.4	8.8
6	Employment rate of older workers	9.7	0.3	2.3	2.7	5.0
7	Unemployment rate	14.6	1.4	2.4	3.8	8.8
8	Female employment rate	12.7	0.3	2.3	2.7	8.0
9	Long-term unemployment rate	9.6	1.2	2.6	3.8	3.8
10	Public expenditure of education	15.6	2.1	3.7	5.9	7.7
11	R&D expenditure	14.2	2.3	3.0	5.3	7.8
12	Level of Internet access	18.0	2.0	4.0	6.0	10.0
13	Prices in network industries	10.6	2.6	1.6	4.2	5.6
14	Sector and ad hoc State aid	13.4	2.6	2.4	5.0	7.4
15	Income distribution by quintiles	10.8	1.8	2.0	3.8	5.0
16	Poverty rate (before and after social transfers)	13.2	2.2	2.5	4.7	7.0
17	Persistence of poverty	11.8	2.3	2.5	4.8	5.0
18	Jobless households	10.8	1.3	3.0	4.3	5.0
19	Interregional variation in GDP per capita	12.3	2.5	2.8	5.3	5.0
20	Early school leavers	10.0	0.8	2.8	3.5	5.0
21	Energy intensity of the economy	12.7	2.0	1.4	3.4	8.4
	Average	13.1	1.9	2.7	4.6	6.9

The respective sums in the table I.4.2.1 represent the average value of the number of answers for the given groups of questions for a given indicator. An affirmative answer to a question was marked with number 1. Various horizontal coordinators provided their opinions (each indicator was dealt with by 1-7 coordinators). The first conclusion derived from the summary table (details can be found in Part II or in the Special work appendix for IMAD) is that opinions of horizontal coordinators on a given question differ, otherwise the average of the sums would not be decimal numbers which is the case for the most part of the table. According to general principles and experience with the preparation of indicator systems we expected that different people would have different points of view. Our anticipation turned out as correct as we analysed the results of opinions about EU structural indicators. According to the context of SEDS we must carefully observe the sum D2. This sum refers to the question, whether the indicator indicates that the aims of one of the 5 mechanisms for the implementation of the strategy were attained. As we can see in the above table the average value of this sum is 2.7 of 5 possible points (in the case when horizontal coordinators would answer all questions with a 1). Another important conclusion can be drawn from this. The conclusion based on general principles and experience with the preparation of indicator systems was that a given indicator might be used for analysing developments in connection with several goals and fields. This conclusion again proved right as we analysed opinions of horizontal coordinators on this question.

The study gives also a detailed explanation about incorporating indicators in the common list of indicators Selection Sicenter 1. For the lack of space we cannot include all the arguments in the summary. As can be seen in the table I.4.1.1 34 out of 60 indicators are connected to structural indicators of EU while other additional indicators were proposed by horizontal coordinators of IMAD (21) and Sicenter (11) – some of these were proposed by both IMAD and Sicenter. In the study and in the Special Appendix for IMAD there are 100 suggestions

for additional indicators (put forward by IMAD). These suggestions were divided into three groups. 29 suggestions in the first group are those additional indicators that were included in the Selection Sicerter 1. 23 indicators of the second group were designated for further research; many of these were institutional indicators. For the remaining 48 suggestions Sicerter does not recommend incorporation in the framework of the first layer of indicators of the aggregate system in the next year.

An important part of the study is the proposal for methodological sheets for further work prepared by Bojan Radej. The established indicator group at IMAD will discuss this proposal together with other results of the project so it can still be altered before it is further developed by the experts of IMAD. It needs to be mentioned here that this methodological sheet turned out much lengthier than similar methodological sheets that deal almost exclusively with data about databases. Apart from the component that deals with data (comparable with the document of Eurostat (2000)) this methodological sheet consists of several elements connected with analysis, interpretation and administrative procedures (conducted by IMAD) that were required by the development and establishment of the aggregate indicator system. In this way we will be able to compile in the foreseeable future the database with important information that will provide the basic framework of SADIM and help solve operative difficulties in establishing the aggregate system and in reporting the results to the general public.

A SPECIAL WORK APPENDIX FOR IMAD

It is obvious that the assessment sheets prepared in IMAD provide a lot of valuable documentation, which is not only an important input into this stage of the project but also for the foundation for future stages of the preparation of the system of aggregate development indicators for monitoring SEDS in IMAD. As this is internal material of IMAD, the database acquired by the analysis of answers of the horizontal coordinators – after the first proposal for the selection of indicators is prepared by Sicerter – will be transferred to IMAD. Therefore one part of results of the project is gathered in the Special Work Appendix for IMAD (working database of inquiries for indicators for monitoring SEDS) that represents the Part V of the study. This part will only be delivered to IMAD, partly in electronic and partly in printed form (aprox. 30 pages) that include selected examples from the database in the Access program, as mentioned in the Contents of the study. Many inquiries were conducted on the basis of the database with the help of several criteria. One interesting question was to determine the intersection of two sets: structural indicators for the synthetic report of the EU and the assessment of horizontal coordinators about the relevance of indicators for the goals and mechanisms of SEDS.

The general overview of the results and the use of these for the preparation of Sicerter's proposal for the selected broader indicator set of the aggregate system for monitoring SEDS called Selection Sicerter 1, are provided in Part I, particularly in the item 4.2. The opinions of horizontal coordinators from the assessment sheets, both about EU structural indicators and additional suggested indicators, were entered into the Access database. On the basis of such a database one can conduct all kinds of inquiries according to several criteria. The preparation of such a database, which can be quite lengthy, was useful for two purposes. Firstly, to organize the data collected in this stage of the project and to provide a foundation for future queries of data according to other criteria (that can now be worked out by IMAD as necessary). Secondly, such a procedure is on principle possible also for much more complex methodological sheets that will be prepared in IMAD while working on the aggregate

development indicators system. In this way we will also acquire experience, useful for further stages of the project.

TIME DISTANCE AS A NEW ADDITIONAL MEASURE FOR ASSESSING DISPARITIES IN DEVELOPMENT AND FOR MONITORING IMPLEMENTATION OF SEDS

For a more successful involvement of the citizens in decision making there is a need to improve the access to information and develop simplified formats for presentation and dissemination that would help all groups in the society to participate in these decisions. Time distance framework has the potential to provide new understanding of the situation for a variety of situations in economics, politics, business and statistics, asking new questions and formulating new hypotheses. Namely, the quantitative indicators and measures used in the semantics of discussing these issues, in setting the targets and following their implementation have an influence on the perceptions, decisions and behavior. Time distance can contribute to greater transparency and broader semantics in policy debate, and can provide an excellent presentation and communication tool understandable to general public.

In this context possible application of the concept of time distance and a novel statistical measure S-distance is presented as a novel statistical measure in the literature offering an additional perspective on development and inequality issues, a new dimension of information from existing data. S-distance is a generic new view of the information, generalised to complement conventional measures in time series comparisons, regressions, models, forecasting and monitoring, and to provide from existing data new insights due to an added dimension of analysis. Since it is expressed in units of time, which everybody understands from ministers to general public, it possesses one of the ideal characteristics of a presentation and communication instrument. Thus it is expected that the analysis of and discussion about time distances will have considerable influence on public opinion.

At the same time the suggested methodology introduces in the literature a new perspective about the degree of inequality in development and welfare and thus improves the analytical background for value judgements, which individuals and groups at various levels form about their relative position in the society and in the world. It can lead to new hypotheses about interrelationships between the problems of growth and problems of disparities in theory and practice.

The application of the time distance methodology in the SEDS and NDP (National Development Plan) will apart from the contribution to better understanding of situation in Slovenia serve also as an analytical innovation in discussions with EU. Combining the idea of time distance and the novel statistical measure S-distance with conventional static measures points to the importance of measuring and comparing in time or order to provide for a better perception of reality and of policy alternatives. This approach brings improvements in the current state-of-the-art of comparative analysis in two fields, conceptual and analytical. This part of the study is organized in three parts.

The first part presents the definition of time distance, its theoretical background and the methodology of calculating S-distance. The application of time distance methodology for monitoring of SEDS and NDP could in addition to its use for a better understanding of developments in Slovenia serve also as an innovation in discussions with the EU. The concept of time distance and its operationalisation with the help of the novel statistical measure S-

distance represent a contribution to the present state-of-the-art of comparative analysis in two regards, conceptual and analytical. It complements rather than substitutes conventional methods of comparative analysis. This part of the study, which is prepared in three sections, represents a useful innovation in two respects.

Firstly, there is a brief presentation of the definition and methodology of calculating time distance, followed by concrete practical examples of possible applications for monitoring of SEDS as well as for possible use at the European level for comparisons with the USA and Japan. S-distance as a statistical measure has two important advantages. One big advantage is that it is defined in standardised units - time - which means that everybody understands the notion of the time lead or time lag between two compared units for a given level of the indicator. This makes it not only a transparent analytical measure but also an excellent presentation and communication device, which is of great importance for its practical use and which could have considerable influence on public opinion. The second big advantage of this approach is that the results and conclusions based on the two-dimensional analysis add new information and new insight, while none of the earlier results are lost or replaced. In its role as a descriptive statistical measure time distance by adding an additional perspective may be helpful for understanding the development processes and analysis of position in the society and the world. The approach is thus useful both for the preparation of strategy and economic policy, for monitoring implementation of strategy and policy, as well as for better participation of civil society in these processes.

Secondly, in addition to the use of S-distance as a descriptive statistical measure, the broader conceptual framework poses new interesting questions for growth and welfare theory, and the related policy issues. It introduces a broader theoretical approach to disparities in development and welfare, thus presenting a better analytical foundation for value judgments which individuals and social groups form about their relative position in the society and in the world. The analytical conclusion that higher magnitudes of growth rates lead, *ceteris paribus*, to smaller time distances, and vice versa, is important for the overall strategy. It relates performance and efficiency in a novel way to the broader notion of the overall degree of disparity. Higher efficiency and thus higher growth from given resources may mean smaller time distances and thus greater cohesion in the society, which may provide a more conducive environment for timely adjustment and easier decisions for change leading in turn to a more efficient development. The 'vicious' circle would work in the other direction; inefficiency has important negative economic and political consequences as far as disparities are concerned.

If one follows the novel theoretical approach the policy measures to improve the economic efficiency may, *ceteris paribus*, in an indirect way be helpful also for reducing the time dimension of disparity; and the inefficiency worsens the problem of disparities, respectively. The relationship between growth and inequality is one of the most important and most controversial aspects of development strategies. The presented theoretical foundation, in section III.A in Slovenian and in section III.C in English, represent important perspective for further discussions about development options in a learning society.

For practical applications there is very important distinction, both in terms of the information source for determination of the *ex post* and *ex ante* values of time distance as well as in their application. They relate to different periods, past and future; the first belongs to the domain of statistical measures based on known facts, the second is important for describing the time distance outcomes of the results of alternative policy scenarios for the future. In the study three groups of applications of time distance for the monitoring of SEDS are presented: *ex*

ante evaluation of projected values of the indicators with the help of time distance; comparison of actual with projected values (the degree of implementation can be assessed simultaneously in two dimensions: the deviation in the value of the indicator at a given point in time, on the one hand, and deviation in time for a given level of the indicator, on the other); various possible forms of comparison with other countries in time and space (examples of visualisation of results of such comparisons are added). In Part III.B the time distance method is applied to comparison between USA, Japan and EU with respect to R&D inputs and Internet users per capita. In both cases several important additional conclusions were reached, which were qualitatively different from those attained by conventional methods of comparisons. The values of time distance show that EU15 is lagging behind the USA most in R&D indicators where the time distance for the share of R&D expenditures in GDP amounts to 40 years, and for share of researchers and engineers in total labour force 21 years. This conclusion shows in a dramatic way that Europe has to increase material and human resources in the R&D field, as better organisation alone (for instance European Research Area) and better utilisation of existing resources cannot close the gap. This is an important argument for discussion of research policy also at the European level.

FURTHER WORK

As mentioned in the project proposal, this stage of the project deals only with the methodology of the aggregate indicator system and not with the detailed specification and quantification. The final version of the aggregate indicator system can only be finalized after SEDS is officially approved. However, this will happen after the end of this contract. The experience of EU shows that the process of developing indicator systems is a lengthy process and thus we have to determine (together with all those who finance the project) the scheme for the next stage of preparing the system of aggregate development indicators for monitoring SEDS in the framework of the current Targeted Research Program. The decisions about the final form of the aggregate indicator system and about the possible forms of use, presentation and dissemination will be made by IMAD. However, there are certain items among the results of this stage of the project that could be helpful for such consideration.

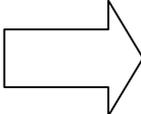
The sketch below represents one of the possible illustrations of the key elements in the construction, improvement and further development of the aggregate indicator system for monitoring SEDS. The first column presents the basic structure based on the priorities of SEDS and an outline, which is a compromise between the desired, and the feasible structure of SADIM at a given point in time. As Slovenia will have to – once it is a full member of the EU – make its contribution to the set of structural indicators for synthetic reports for the meeting of the European Council; the second column represents the essential elements of this system in the EU. The system of structural indicators in the EU is important for us for three reasons. As our priorities are the goals of SEDS the EU system is firstly important in the methodological sense; this has been demonstrated in other parts of the study. It is also important in the sense of the necessary long-term adjustment. The logic is clear. Very soon we will also have to use the set of indicators used by the EU at least as the minimal or requisite set. Therefore it was reasonable to have checked the opinions of experts in IMAD; if the indicators of this set also meet the requirements of SEDS, it makes sense to include them already in the first broader selection of the aggregate system of indicators. An additional argument for this decision is the fact that it makes two things easier for us. Firstly, the data collected by Eurostat and other organisations for EU members, can also be used in comparative analysis for Slovenia; in this way we will not have to collect data on our own.

Secondly, in this context the differences between our definitions and collection of data and the harmonized series of data for EU could be dealt with more systematically; here SORS would play an important role.

In the general context we may presume that the work until the end of 2003 could accomplish further stages of the development of the system of aggregate development indicators in the sense that we could carry out all the necessary stages for the systematic testing of the database and new theoretical and methodological procedures and for adding a number of new indicators. The column with the label 2003 enumerates the additionally required activities.

The further stages of work on the aggregate indicator system for monitoring SEDS will involve also the following elements:

1. IMAD decides for the final selection of the first set of indicators of SADIM.
2. Planning of the operative collection of data, formation of time series of indicators and the documentation according to the methodological sheets. (See Part II)
3. IMAD resolves about the manner, form and deadlines for the first official presentation of indicators for monitoring SEDS (e.g. the yearly report about the implementation of SEDS would be prepared in autumn of 2001 or 2002).

2001			2003
SEDS System of aggregate development indicators	EU Structural indicators for synthesis report		Harmonization of both approaches to the extent possible Priorities are still derived from SEDS
Priority for the first layer of the aggregate system of indicators	Guidelines based on the approach in the EU: <ul style="list-style-type: none"> • goals • methodology • harmonization 		Methodical links with others indicators systems and lower levels Institutional coordination International coordination
Use <ul style="list-style-type: none"> • Autumn 2001 (?) • Autumn 2002 (?) 	<ul style="list-style-type: none"> • Spring Report for Economic Council 2001 		Further development of the system of indicators

These three elements represent important intermediary decisions that will function as directions for further work. In the next stages we should discuss the relative importance given to the problems related to the preparation of data and indicator system, on the one hand, and those related to the analysis, on the other hand. The call for project proposals for the Targeted Research Program last year included separate projects for both types of problems. It seems

that this approach is suitable also for the next call. After the decisions of IMAD about the three above-mentioned elements are made, the structuring of future projects will be much easier. For this particular project 'The system of aggregate development indicators for monitoring SEDS' the next stage involves further deepening and improvements, with additional discussion of the theoretical and conceptual problems as well as preparation of alternative technical solutions with methodological sheets and presentations. In each of the next stages the roles of project work and work in IMAD will be different.

An important issue is to ensure cooperation with other institutions. One of such links is the Statistical Office of the Republic of Slovenia. This is first a question of systematic data collection and publication, but also a link with Eurostat and the process of obtaining and updating EU data and the related administrative procedures and permissions. The other group of links relates to interrelationships between various layers of indicators (as defined by the EU Economic Policy Committee), in our case the interrelationship between SEDS and National Development Plan (NDP) and the relationship between IMAD and other government institutions. On the one hand this is related to the sector, special and institutional disaggregations, on the other hand it is a question of cooperation and attaining synergy in developing, use and interconnection of various indicator systems by achieving social consensus and development partnership. An important point is that data and the basic starting analysis are public good, which is freely accessible to all on a web page, thus serving as a basis for complex analyses of different users for their specific purposes as well as immediate information for a very broad audience of numerous users at home and abroad.