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**MONITORING SUSTAINABLE DEVELOPMENT IN SWITZERLAND – THE LONG
WAY FROM A CONCEPTUAL FRAMEWORK TO SUSTAINABLE DEVELOPMENT
ANALYSIS**

Prepared by the Swiss Federal Statistical Office

INTRODUCTION

1. This document describes:
 - (a) The reference system and the systemic framework of the MONET system of sustainable development indicators;
 - (b) The interfaces between the MONET system and the "capital approach";
 - (c) The most recent as well as the future developments of the system.
2. The Swiss Indicator System MONET (a German acronym for Monitoring der Nachhaltigen Entwicklung) differs from many other national or international systems as it does not evaluate a sustainable development strategy but monitors whether or not and in which areas Switzerland is on the road to sustainable development. MONET is one of the few sustainable development indicators that are not based on a "policy-based" approach to development but rather on a conceptual framework that partly includes the capital approach. This systematic approach, which is independent of policy, is the result of the important commitment for a national statistical institute to guarantee transparency and comprehensiveness and to minimise the risk of arbitrariness or one-sided influence of any interest group.

II. CONCEPTUAL FRAMEWORK

3. According to the terminology adopted by the Working Group on Statistics for Sustainable Development (WGSSD), the MONET system is based on an integrated view of sustainable development. It includes both the need for the present generation to preserve possibilities and for future generations to meet their own needs. It is founded on solidarity within and between generations which is relevant over time and space.
4. The conceptual framework of the Swiss MONET-System is based on a frame of reference and on a systemic structure.

A. The frame of reference

5. The construction of the frame of reference started out by examining the original definition of sustainable development set forth in the Brundtland Report. This definition is then interpreted drawing on human rights principles and the theory of justice propounded by John Rawls in 1978. This interpretation reflects the fundamental values expressed in official documents from the United Nations Conference on Environment and Development, formalised in the Rio Declaration on Environment and Development and outlined in Agenda 21.

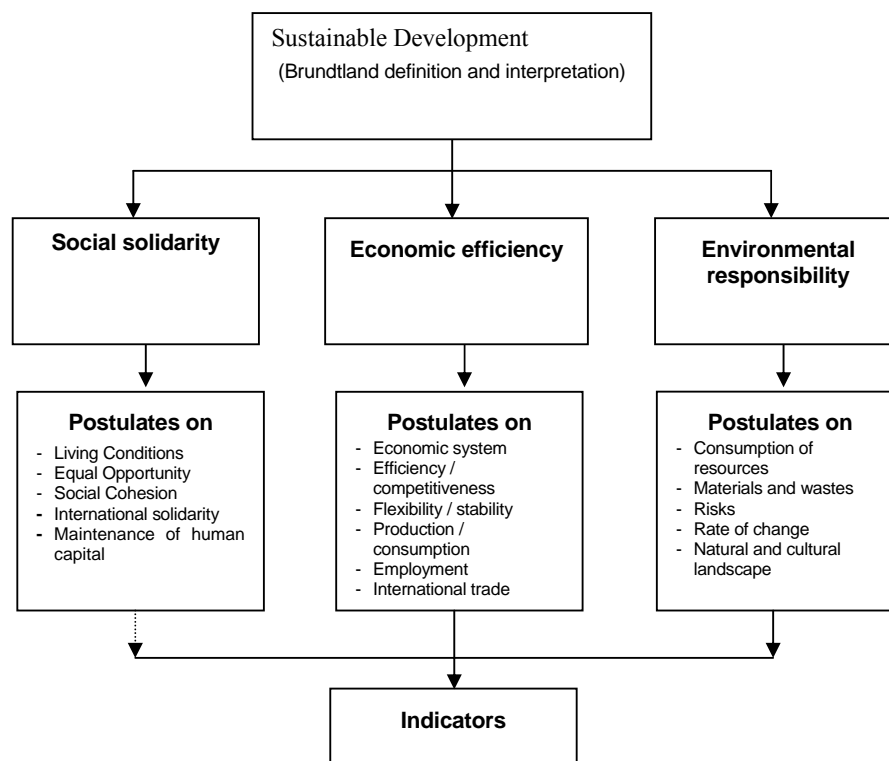
6. The interpretation thus features the following interrelated key ideas:

- (a) Making sure that the options available to us to meet our needs are kept open;
- (b) Making sure that present and future generations enjoy the same quality of life; and
- (c) Making sure that limited resources are not depleted.

7. The definition of sustainable development is then broken down into three primary objectives: 'Social solidarity', 'Economic efficiency' and 'Environmental responsibility'. Rather than depicting the primary objectives as three separate pillars standing side by side, as has traditionally been the case with 'Society', 'Economy' and 'Environment', the primary objectives are wanted to be perceived as mutually interdependent spheres acting upon and influencing one another. This means, for example, that environmental protection measures must be economically efficient and that economic decisions must be both socially and environmentally acceptable. At the same time, all three spheres must be equally important: in the long term, environmental, economic and social objectives cannot be achieved individually at the expense of the other two objectives.

8. Establishing three primary objectives, however, was only the starting point. It was necessary to be able to focus on and assess specific aspects of sustainable development. For this reason, a set of forty-five sustainable development postulatesⁱ were developed. All of these postulates are clearly and directly linked to the main elements of our definition of sustainable development (intra- and intergenerational justice, maintenance of options, meeting of needs, finite natural resources) as well as to the three primary objectives. More importantly, their relevance is meant to span both space and time. Since the postulates are geared to the long term, no attempt is made to solve current problems. Instead, the postulates are intended to steer us in the right direction. Each of the forty-five postulates is linked to one of the three primary objectives. The postulates suggest ways to meet needs in an efficient and equitable manner without depleting existing resources.

Figure 1: Frame of Reference



9. The gain by doing so is greater coherence and clarity (since each indicator must be linked to at least one postulate). This also distinguishes it from policy-based approaches where emphasis is often placed on current issues that change from one legislative session to the next. Figure 1 below shows the frame of reference whereby our definition of sustainable development led to the creation of three primary objectives, followed by forty-five postulates and, finally, the sustainable development indicators that would make up the MONET system (see Figure 1).

10. Since the three areas of society, economy and environment are recorded as qualitative objectives and not as capital stocks, the postulates allow statements to be made not only in relation to stock sizes but also to the meeting of needs and the defining of processes (e.g. equity or decoupling). The postulates have a clear and direct relation to the definition and the qualitative objectives, and they are relevant over time and space. Given that they are geared to long-term validity, they do not include any current political measures or paths towards solutionsⁱⁱ.

B. The systemic structure

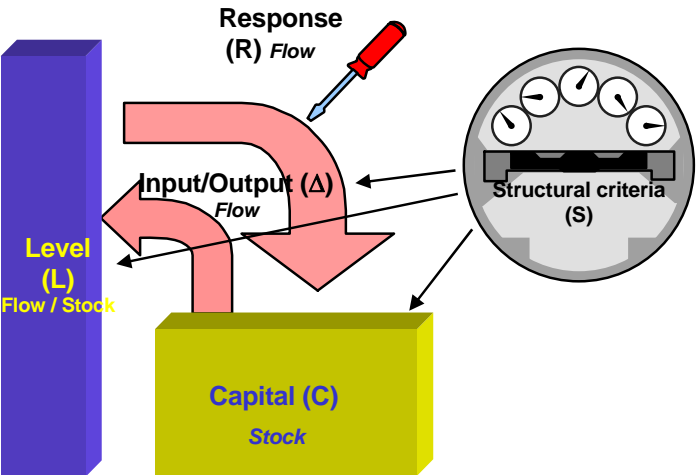
11. Unlike a simple list, an indicator system rests upon a structure that provides a logical and systematic framework from which indicators can be chosen. In the case of MONET, this structure takes the form of a matrix comprising two axes: a thematic and a procedural one (cf. Figure 2).

Figure 2: Systemic structure

Type of indicator				
Topic				
			Indicator X	

12. The thematic, or topic axis essentially determines what will be measured. This axis was broken down according to twenty-six themes, which more or less matched the political sectors of the Federal Administration (e.g. health, development cooperation, competitiveness, consumption, mobility, biodiversity). This was meant to ensure that our indicator system would be reasonably compatible with sustainable development efforts made at the national level. At the same time, it greatly simplified communication with the federal agencies that helped to select and produce the indicators. Following the revision of the MONET system, which was concluded in June 2009, the number of themes was reduced from 26 to 12 (see next chapter, "Further Work").
13. The procedural axis is based on the indicator classification developed for the MONET project to describe the dynamics of the operations of relevance to sustainable development. The model has similarities with the “driving force-pressure-state-impact-response” model used in some indicator systems. Unlike the latter, however, it is not tailored to the requirements of environmental applications, but is also applicable to social and economic topics. This is particularly due to the following type of indicator, the structural criteria. They answer the question: “To what extent is the capital used in an equitable and efficient manner?” These indicators relate to equity in meeting needs and distribution of capital between various population groups and how efficiently resources are used.

Figure 3: Stock-flow model showing the five sustainable development processes



14. The model (see Figure 3 and Table 1) encompasses various aspects which are relevant to sustainable development: the degree to which social needs are met (L), flows to, or from, the capital for that purpose (Δ), the status and potential of resources (C) and the level of efficiency of the flows to, and from, the capital, as well as disparities in the meeting of needs or in the access to stocks of capital (S). Combining different types of indicators allows complex statements to be made on particular topics and prevents arbitrary assessment of developments. In practice, the indicators from one topic, unlike in the above (ideal) model, frequently do not display any clear causal associations. A causal relationship between the individual indicators of a topic area is therefore desirable, but not essential.

15. All five sustainable development processes are based on the Brundtland definition and our interpretation of this definition. The typology is a procedural interpretation, whereas the postulates mentioned above are an interpretation of the content of this definition. The aim is not to communicate but rather to help guide the process of selecting indicators by forcing those building the indicator system (or involved in the process of selecting indicators) to take into account the main processes of sustainable development. At the same time, using these five sustainable development processes ensures that the various partners involved have the most complete and neutral understanding of the given theme as possible.

Table 1: Detailed description of the five sustainable development processes

Type of indicator	Link to definition	Question	Meaning	Indicators
Level (flow)	Meeting needs	How well are social needs being met?	Extent to which individual and social needs of the current generation are being met.	Unemployment rate Floor area per person
Capital (stock)	Preservation of resources for intergenerational equity	What are we leaving behind to future generations?	Current and future status of environmental, economic and social resources and infrastructure. Shows extent of intergenerational solidarity.	Biodiversity Level of public sector debt Teenage reading skills
Input/Output (flow)	Preservation of and investments in capital	How are we using the resources we have now?	Use of resources, growth/depletion of resources. Outflows to cover needs and inflows in the form of investment or waste.	Investment to GDP ratio Final energy consumption Emission of greenhouse gases
Structural criteria (ratio)	Fair distribution of resources for intra-generational equity Optimal resource use (decoupling)	How well are existing resources distributed? How efficiently are we using our resources?	Social disparities, equal opportunities. Shows extent of intergenerational solidarity. Economic and environmental efficiency. Shows extent of decoupling.	Wage disparities by sex Population exposed to air pollution Share of renewable energies Material intensity of the economy
Response (flow)	Keeping options for meeting needs	How are we responding to observed phenomenon?	Social and political measures taken to counter undesired developments.	Consumption of products from fair trade Environment-related taxes

III. RESULTS

16. The indicators were selected in a participatory process in which 80 staff members from 20 federal offices took part. This process was underpinned by a series of rules and criteria designed to prevent that one or several participants could exert undue influence in the selection of the indicators and to ensure that both the system and the indicators meet the requirements of official

statistics. The original system, published in 2003, comprised 163 indicators of which 130 were produced or published. The remaining 33 indicators were considered "nice to have" but were never produced because of lack of availability of data. The system was revised in 2009 and currently comprises 80 indicators, of which 12 are new (see "Further Work" chapter below). The revised system also includes 20 gaps or "nice to have" indicators.

17. In view of the experiences made since the MONET indicators system was launched in 2003, it is our considered opinion that these gaps ("nice to have" indicators) contribute to the independence of official statistics and are an important vehicle for the development of a statistical system. They demand, on the one hand, statistical data that fall outside the framework set by the government or by the resources it allocates to official statistics and, on the other hand, they constitute an impetus to launch research or development programmes.

IV. FURTHER WORK

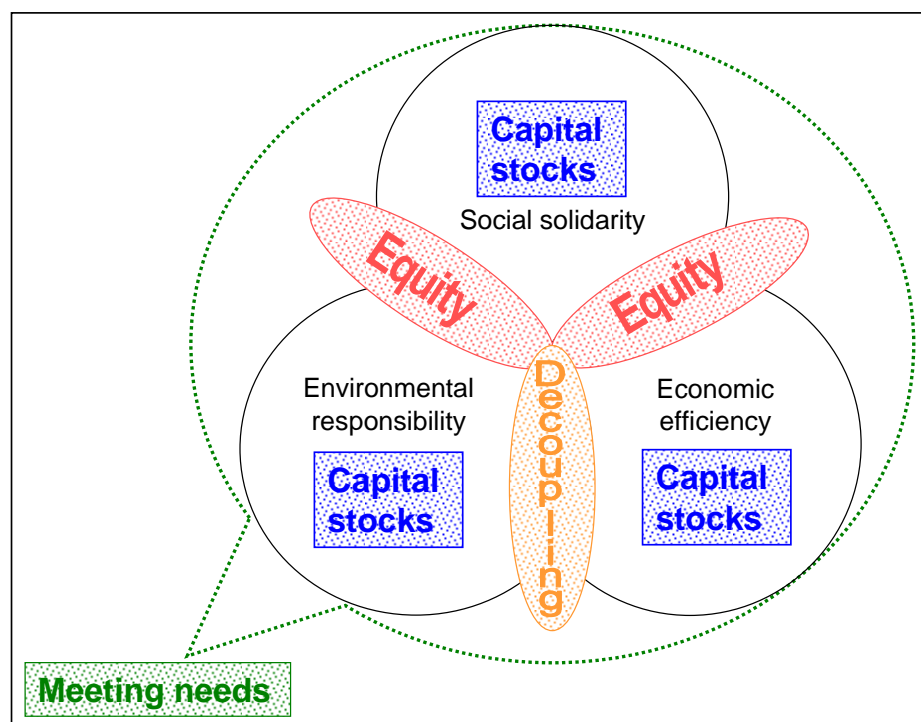
A. Key indicators

18. Although the large number of indicators, which was a result of the system's structure, could be seen as a problem there is the advantage that it represents a pool of sub-groups for specific applications. It includes flagship or framework indicators, indicators that can be used for comparisons with other countries, or selections for specific questions. For example, the MONET key indicators could be drawn from the set. In this case, the systemic structure helped to organise the selection of the key indicators (see Figure 4): the indicators for capital concern fairness vis-à-vis future generations and the structural criteria fairness within the present generation as well as the efficiency of the use of resources, while level indicators give an overview over the development of the standard of living. For this reason these three types are of special importance in relation to assessing sustainable development and come first, when a reduction on a few indicators is asked for.

19. Since the systemic framework is based on the Brundtland definition, it is possible to structure these key indicators in a clear and unequivocal manner around four questions which we consider to be fundamental to sustainable development:

- (a) Meeting needs - How well do we live?
- (b) Fairness - How well are resources distributed?
- (c) Preservation of resources – What are we leaving behind for our children?
- (d) Decoupling – How efficiently are we using our natural resources?

Figure 4: Condensed model for the key indicators



B. The extension of MONET by the global dimension of sustainable development

20. As a result of globalisation, a country's sustainable development can no longer be regarded in isolation. Pollution, issues concerning natural resources and questions of equality transcend national borders.

21. In a joint project of the Federal Statistical Office and the Swiss Agency for Development and Cooperation (SDC), a group of experts, using the reference framework, the systemic structure and the MONET topics, defined themes which characterise the global dimension. The important themes of the global dimension of sustainable development are:

- (a) Natural resources, food;
- (b) Energy, climate;
- (c) Trade, production, transport, consumption, institutional parameters;
- (d) Financial system, financial flows;
- (e) Development cooperation, knowledge and technology;
- (f) Peace and security, human rights;
- (g) Health, migration, population and urban development structure;

(h) Governance: institutions, multilateral organisations, rule of law, law, information, gender equality.

22. The group of experts selected indicators pertaining to the topics defined for the global dimension of sustainable development. However, it has not yet been possible to produce all of them so far. One of the biggest problems is the lack of availability of quantitative time series data. It is often difficult to represent relevant and important topics by indicators. For this reason there are gaps which are gradually being filled. The selected indicators have been integrated in the complete system. They were published in December 2008.

C. The Sustainable Development Strategy 2008 – 2011 from the Swiss Federal Council

23. Some of the MONET indicators were integrated into the Federal Council's new Sustainable Development Strategy published in 2008. Each of the 11 key challenges is headed by five indicators that illustrate the progress that has been made. The Strategy is built upon a vision of sustainable development that includes the preservation of resources, intra-generational equity and equity with Southern hemisphere countries, as well as decoupling. Since these elements correspond to the C (Capital) and S (Structural Criteria) types of the systemic framework, the selection of the Strategy indicators from among the MONET system indicators was relatively simple. Moreover, because the federal offices involved in the Strategy had participated in the construction of the MONET system and were relatively familiar with it, the discussions about the choice of indicators did not take long.

24. The Strategy is subjected every year to an intermediate assessment to which the indicators make a significant contribution. The indicators are also integrated in an internet tool, the dashboard of the Strategy, which presents a overall image of the 11 challenges as well as the possibility of consulting each challenge or indicator separately.

D. Revision of the MONET system

25. Experiences made since the MONET indicator system was put online in 2003 as well as a users survey confirmed that the system is very solid and responds to a real need. However, some elements need to be improved, i.e. the limited readability of the system due to its excessive size, the lack of relevancy of certain indicators, the existence of gaps and the limited international comparability.

26. The system's revision project, which took place from September 2007 to June 2009, pursued the following objectives:

- (a) Reducing the size of the system;
- (b) Increasing its relevance;
- (c) Filling observed gaps;
- (d) Enhancing international comparability.

27. As they were considered to be very solid, the system's structural elements, such as the postulates and typology of the indicators, were not revised.

28. During the revision process, the system was analysed and the indicators were subjected to a series of selection criteria which concerned the use of the indicators in reports and analyses, their presence in the Swiss Federal Council's Sustainable Development Strategy 2008 – 2011 as well as possibilities for international comparison.

29. The results of this analysis were discussed, commented and completed by several working groups composed of representatives from the areas concerned at the FSO and from federal offices active in the field of sustainable development.

30. The list of themes, which is the gateway to the system, was also revised with a view to reducing the size and improving the readability of the system. The 12 new themes correspond better than the 26 previous ones to the European Union's sustainable development indicators system.

31. The revised system currently comprises 80 indicators (instead of 130), including 12 new ones, which are divided into new themes. It also includes 20 “nice to have” indicators.

V. THE MONET FRAMEWORK AND THE CAPITAL APPROACH

32. In our view, the MONET conceptual framework and the capital approach are not competing with each other. On the contrary, they can complement each other. In fact, while the future-oriented view of the capital approach to sustainable development is one of the elements of the integrated view used by MONET, the indicators that describe the state of capital stocks represent one of the central elements of the systemic framework.

33. Consequently, the work planned within the framework of TF-SD is particularly significant for the MONET system. In fact, this work ought to facilitate more precise and more solid indicators—be they type C (capital), type I/O (input/output) or S (structural criteria) indicators—both from the point of view of the concepts, especially for the human and social capital, and data that underpin them.

VI. NEXT STEPS

34. Next steps planned by the FSO which could interest other actors: we mention them here in the hope that they will find an echo and thus encourage similar initiatives and ultimately the pooling of know-how and resources..

A. Assessment of the indicators

35. Until now, the MONET indicators as well as several other national or international sustainable indicators systems (UK, Belgium, Eurostat) have been evaluated based on observed developments (trend assessment). Experiences made within the framework of the MONET system clearly show that an evaluation based on absolute objectives or limit values is necessary in some cases.

B. Visualisation, communication of the indicator system

36. Sustainable development requires a complex communication, not of a single indicator but of groups of indicators and even of the system as a whole. Two possible avenues are emerging: composite indicators and dashboards. At the FSO we have decided to pursue the

second avenue. Following an international conference organised in 2005 in Neuchâtel, we published a first dashboard in 2007. The revised version of this dashboard, adjusted to meet the needs of the Federal Council's Strategy, has just been published. This dashboard ought to be considered a first, tentative, step aimed at garnering experiences and stimulating debate and reflection. We can only hope that other actors will take up this path, which remains very complex.

C. Utilisation of the indicators to analyse sustainable development

37. The indicators are selected based on their capacity, real or supposed, to represent a theme, an issue, usually with the aim of communicating it. They are also the result of at times long and complex negotiations. Given these characteristics, it is difficult, on the one hand, to establish causal links between them and, on the other, to apply them in detailed analyses without running the risk of drawing potentially erroneous conclusions. Yet from the perspective of long-term forecasting, it is imperative to be able to determine how the evolution of a phenomenon that is important from the point of view of sustainable development (represented by one indicator) is influenced by the evolution of other phenomena (represented by other indicators). One possible approach to be able to conduct these detailed analyses and establish these cause-effect relationships would be to accompany and complement the sustainable development indicators with other statistical parameters (contextual indicators) which—if they are to meet the requirements of official statistics—would have to fall within the same framework as the indicators and to have been selected, if possible *ex ante*, according to the same criteria and the same processes as the system of indicators they are meant to complement.

VII. SOURCES

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For all information and documents on MONET see: <http://www.monet.admin.ch>

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For all information and documents on the sustainable development policy in Switzerland see:
<http://www.are.admin.ch/sustainabledevelopment>

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ⁱThese postulates can be viewed online at: <http://www.monet.admin.ch>

ⁱⁱ Wherever possible, we adopted existing postulates, mostly based on sustainable development documents used by the federal administration. According to the relative lack of social dimension in the sustainability discourse, we consulted in-house experts of living conditions statistics and made use of social reports.