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Item 4 of the provisional agenda
Development and transfer of technologies

SUBSIDIARY BODY FOR IMPLEMENTATION
Thirtieth session
Bonn, 1–10 June 2009

Item 7 of the provisional agenda
Development and transfer of technologies

Advance report on performance indicators to monitor and evaluate the effectiveness of the implementation of the technology transfer framework

Note by the Chair of the Expert Group on Technology Transfer

Summary

The overall objective of this work is to develop and test a balanced and robust set of performance indicators that could be used by the Subsidiary Body for Implementation to monitor and evaluate the effectiveness of the implementation of the framework for meaningful and effective actions to enhance the implementation of Article 4, paragraph 5, of the Convention. The outcome of this work could also provide input to the work of the subsidiary bodies on the following matters: (i) reviewing and assessing the effectiveness of the implementation of Article 4, paragraphs 1(c) and 5, of the Convention; (ii) considering the role of new financing mechanisms and tools for scaling up development and transfer of technology; and (iii) long-term cooperative action under the Convention.

This advance report presents the progress made by the Expert Group on Technology Transfer in conducting this work.

CONTENTS

I. Executive summary

1. By decision 3/CP.13, the Conference of the Parties (COP) requested the Expert Group on Technology Transfer (EGTT) to develop and test a balanced and robust set of performance indicators that could be used by the Subsidiary Body for Implementation (SBI) to monitor and evaluate the effectiveness of the implementation of the framework for meaningful and effective actions to enhance the implementation of Article 4, paragraph 5, of the Convention (the technology transfer framework). The outcome of this work may also provide input to the work of the subsidiary bodies on the following matters: (i) reviewing and assessing the effectiveness of the implementation of Article 4, paragraphs 1(c) and 5, of the Convention; (ii) considering the role of new financing mechanisms and tools for scaling up development and transfer of technology; and (iii) long-term cooperative action under the Convention.

2. This advance report builds on the interim report prepared for the twenty-ninth sessions of the subsidiary bodies.[1] The specific objectives of this advance report are to: (i) present the participative design process (including a methodological sheet for each performance indicator selected); (ii) report on the experiences in collecting data for measuring the performance indicators; and (iii) present the results of an overall evaluation of the testing process.

3. The report describes how the standard methodological sheet was used as a tool to address, inter alia, the extent to which each performance indicator is specific, measurable, achievable, relevant and time-bound (SMART). A methodological sheet has been completed for each of the 32 performance indicators for monitoring and evaluating the effectiveness of the implementation of the technology transfer framework and for each of the eight indicators for financial flows.[2]

4. Based on the results of the testing process, practical steps are suggested to operationalize a monitoring and evaluation system. These include the possibility of an agreed arrangement between the UNFCCC secretariat and relevant intergovernmental organizations (IGOs) and international organizations to provide the data required. Within this context, there may be a need to find a common technology typology between the UNFCCC secretariat and those IGOs and international organizations. Furthermore, as part of the post-2012 arrangement, the guidelines for national communications may need to be specified or a template be introduced to guide reporting in national communications in order to obtain from Parties the data needed for specific key performance indicators. Specific problems with the performance indicators relating to each key theme are also discussed in the report.

5. The report analysed the possible influences of financial flows for supporting the development and transfer of technologies. A conceptual framework has been developed, which allowed the development of candidate indicators for sources of finance, including the identification of influencing factors. This has resulted in a proposed hierarchy of eight nested financing indicators for sources of finance.

6. The influencing factors for financial flows have been linked to the performance indicators for the technology transfer framework. As a result of this work on influencing factors, it may be possible to relate the objectives of the technology transfer framework to the research and development, demonstration and deployment stages of technology maturity. Furthermore, indicators relating to enabling environments are crucial to reflect the influencing factors.

7. This work on performance indicators by the EGTT may contribute to the work being carried out under the Ad Hoc Working Group on Long-term Cooperative Action under the Convention (AWG-LCA) on matters relating to “measurable, reportable and verifiable”, as referred to in paragraph 1 (b) (ii) of the

[1] FCCC/SB/2008/INF.6.
[2] <http://unfccc.int/ttclear/jsp/EGTTDoc/sheets.pdf>.

Bali Action Plan (decision 1/CP.13), on the following matters:

(a) The standard methodological sheet may assist Parties with the operationalization of some aspects of measurable, reportable and verifiable;

(b) The performance indicators related to finance and capacity-building might be relevant for operationalizing paragraph 1 (b) (ii) of the Bali Action Plan;

(c) The indicator technology programmes/projects from technology needs assessments (TNAs) implemented (PI-TNA-06)[3] refers in its methodological sheet to the concept of nationally appropriate mitigation actions (NAMAs).

8. The EGTT is considering the timing and frequency of monitoring and evaluating the effectiveness of the implementation of the technology transfer framework, including a possibility of initiating a pilot activity by 2010 by using the proposed performance indicators on the basis of existing information.

II. Introduction

A. Mandate

9. The COP, by its decision 3/CP.13, annex II, requested the EGTT to develop, as part of its future programme of work, a set of performance indicators that could be used by the SBI to regularly monitor and evaluate the effectiveness of the implementation of the technology transfer framework,[4] taking into consideration related work under the Convention.

10. The Subsidiary Body for Scientific and Technological Advice (SBSTA), at its twenty-eighth session, endorsed the terms of reference for this work.[5, 6] As requested by the terms of reference, a first interim report with a draft set of candidate performance indicators was made available to the subsidiary bodies for consideration at their twenty-ninth sessions. A second interim report with a proposed set of performance indicators should be made available for consideration at the thirtieth sessions of the subsidiary bodies and a final report with recommendations for using the performance indicators should be made available to the COP at its fifteenth session.[7]

11. The SBSTA and the SBI, at their twenty-ninth sessions, requested that the EGTT prepare an advanced report on performance indicators as input to the fifth session of the AWG-LCA.[8]

B. Background and objectives

12. The SBI and the SBSTA, at their twenty-ninth sessions, welcomed, inter alia, the interim report by the Chair of the EGTT on performance indicators[9] and requested the EGTT to take into consideration the deliberations among Parties at that session when preparing its final version of the interim report.[10]

13. The SBI and the SBSTA recognized the contribution that the work of the EGTT on the development of performance indicators could make to work under the SBI on the review and assessment

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[3] A unique code is given to each performance indicator during the testing process. A list of the full titles of the performance indicators is given in annex II.
[4] Contained in decision 4/CP.7, annex, complemented with the set of actions set out in decision 3/CP.13, annex I.
[5] FCCC/SBSTA/2008/6, paragraph 82.
[6] FCCC/SBSTA/2008/INF.2, annex I.
[7] FCCC/SBSTA/2008/INF.2, annex I, paragraph 16 and FCCC/SB/2008/INF.1, annex I, activity 1.
[8] FCCC/SBSTA/2008/13, paragraph 27 and FCCC/SBI/2008/19, paragraph 68.
[9] FCCC/SB/2008/INF.6.
[10] FCCC/SBSTA/2008/13, paragraph 27 and FCCC/SBI/2008/19, paragraph 68.

of the effectiveness of the implementation of Article 4, paragraphs 1(c) and 5, of the Convention and to work under the AWG-LCA, in particular to deliberations on the concept of "measurable, reportable and verifiable" related to technology as referred to in paragraph 1 (b) (ii) of the Bali Action Plan.[11]

14. The SBSTA reaffirmed that the overall objective of the work on performance indicators is to develop and test a balanced and robust set of performance indicators for each theme of the technology transfer framework.[12]

15. As indicated in the terms of reference, the overall work is divided into three tasks:

(a) Task I: develop a set of candidate performance indicators;

(b) Task II: test the set of performance indicators;

(c) Task III: prepare recommendations for using the indicators.

16. Task I started with a concise background paper that outlined the approach taken and focused on the issues and practicalities of identifying, developing and applying various indicators, and sharing the existing body of work in this field. The first interim report presented the participative design process of developing performance indicators that relate to the objectives of the technology transfer framework.

17. Task II aimed to test the use of the proposed performance indicators developed during task I for the five key themes of the technology transfer framework: technology needs and needs assessments, technology information, enabling environments, capacity-building, and mechanisms for technology transfer. These proposed performance indicators were taken from the list of candidate performance indicators derived from the objectives stipulated in the technology transfer framework.

18. The specific objectives of this advance report are to: (i) present the participative design process (including a methodological sheet for each performance indicator selected); (ii) report on the experiences in collecting data for measuring the performance indicators; and (iii) present the results of an overall evaluation of the testing process.

C. Scope of the advance report

19. This report presents the progress made in testing the proposed performance indicators. The document discusses the development of the methodological sheets for the performance indicators as part of the testing phase, including the difficulties faced with regard to data collection. The EGTT selected the initial 32 key indicators. All of these indicators have been tested using a standardized methodological sheet. Determining whether or not the data exists and collecting data are crucial stages in the testing process.

20. In the terms of reference for this work, it is requested that an analysis of possible influences of financial flows for supporting the development and transfer of technologies be included. In that regard and based on multiple data sources, the level of various kinds of annual investment (official development assistance, the clean development mechanism, Global Environment Facility, etc.) in individual countries has been determined and indicators that can reliably reflect what could be influencing these patterns of investment have been identified and tested. Chapter VI of this document details the factors influencing financial flows.

[11] FCCC/SBSTA/2008/13, paragraph 28 and FCCC/SBI/2008/19, paragraph 69.
[12] FCCC/SBSTA/2008/13, paragraph 28.

21. At the fifth session of the AWG-LCA, Parties may wish to consider the following issues:

(a) The ways in which (some of) these performance indicators could be applied to the post-2012 arrangement;

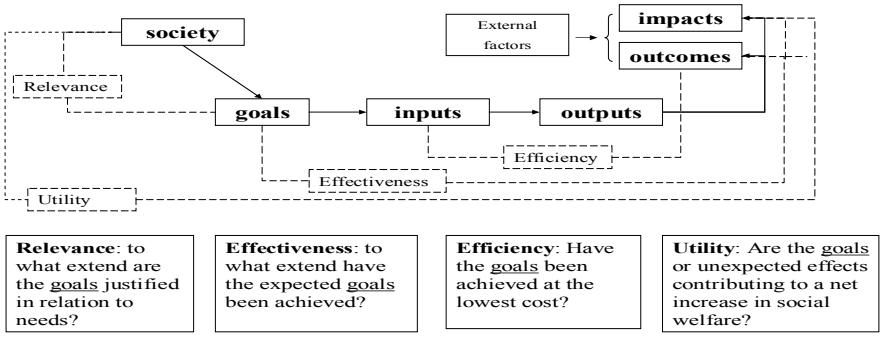
(b) The usefulness of the participative design process (including using tools such as standard methodological sheets) in the operationalization of some aspects of "measurable, reportable and verifiable", as referred to in paragraph 1 (b) (ii) of the Bali Action Plan.

III. Methodology

A. Developing and testing indicators: a participative design process

22. As outlined in the interim report, the participative design process is used to develop and test performance indicators. This process increases the sense of ownership of stakeholders in the final result. Hereby the key stakeholders (Parties, IGOs, etc.), should be involved from the start of the process so that they can contribute to drawing up of the list of performance indicators. The so-called Bellagio Principles for Assessment, developed under the auspices of the International Institute for Sustainable Development, are used as guidelines for a systematic and coherent approach and include a feedback mechanism. It creates a framework for the monitoring and evaluating of the effects of policies (see figure 1).

Figure 1. Framework for monitoring and evaluating the effects of policies



Source: Adapted from figure 6 in: EEA. 2001. *Reporting on Environmental Measures: Are We Being Effective?* Environmental issue report no. 25. Copenhagen: European Environment Agency.

23. It has become clear that developing and testing a set of performance indicators for monitoring and evaluating the implementation of the technology transfer framework is an ex post exercise. When this work was mandated by the COP, Parties were informed of the analysis of the current situation regarding the development and transfer of technologies under the Convention, the stakeholders involved and the problems that had been identified, as well as the defined objectives of the technology transfer framework. Therefore, the information contained in existing documents, such as document FCCC/SBSTA/2006/INF.4, was used as a starting point. This work does not take into account the intentions expressed by Parties for a post-2012 arrangement.

24. The next step in the process has been the so-called 'unravel' exercise. This is an exercise where the components of a vision (i.e. the vision for each of the five key themes in the technology transfer framework) are made less abstract in order to design metrics and performance indicators that best reflect the objectives of the technology transfer framework.

25. The set of key indicators will target priorities as expressed in the actual formulated objectives and in line with the existing vision. A chain of causality needs to be developed that links impacts, outcomes

and output with objectives. When the causal relationship is not clear, feedback could be given to adjust the vision and objectives in the long term. The candidate performance indicators were regrouped into subsets targeting the different levels of, and groups involved in the policymaking process (the UNFCCC secretariat, Annex II Parties, non-Annex I Parties, IGOs, etc.). The performance indicators can relate to the macro level or to different subjects (plans, programmes, instruments, etc.).

26. In fact, the process for developing and testing performance indicators could allow an audit of the whole chain of causality, from COP decisions on the development and transfer of technologies up to the expected sustainable development outcomes and impacts in countries, with recommendations for redefining the vision on the development and transfer of technologies and its necessary ingredients (capacity, institutional arrangements, continuity, etc.).

Box 1. Learning from experiences inside and outside the UNFCCC

In general, it can be concluded that experiences with performance indicators under the UNFCCC are rather limited. Processes such as on reporting on global observing systems for climate under the Convention and on the clean development mechanism under the Kyoto Protocol have begun, but are still in the process of being implemented. Some time ago, similar work started on performance indicators for the monitoring and evaluation of capacity-building at the national level, consistent with the UNFCCC capacity-building framework. This ongoing work has shown that there are some similarities and differences with work being carried out elsewhere, some of which emphasize the approach taken in the development and transfer of technologies process.

Looking at experiences with performance indicators, monitoring and evaluation, and the development and transfer of technologies, it is clear that there are several approaches for defining and structuring performance indicators with differing points of emphasis (e.g. the emphasis placed by organizations on measuring outcomes and impacts). Many organizations and bodies (international organizations, donors and governments) have developed their performance indicators around similar general structures, but the terminology used often differs and thus there is a need for harmonization across countries and stakeholders in the development of performance indicators for the development and transfer of technologies.

There are several approaches for defining and structuring performance indicators, and the point of emphasis can differ. The general framework that most organizations and bodies use as a basis for developing their performance indicators is similar to that used as part of this work on performance indicators. Performance indicators are seen as measures of impacts, outcomes, outputs, processes and inputs that are monitored during and/or after implementation to assess progress towards, or the achievement of, project/programme objectives. Most of the tools, methods and approaches used present variations of this format.

B. The technology transfer framework in detail: relating a set of candidate performance indicators to clear objectives

27. The technology transfer framework consists of the following elements:

(a) Key themes and areas for meaningful and effective actions, each of which is divided into definition, purpose and implementation (decision 4/CP.7, annex, paras. 3–28);

(b) The set of actions set out in decision 3/CP.13, annex I, paragraphs 8–24.

28. Taken together they express the vision of the COP regarding the key themes, from means (methods to achieve objectives) or ends (achievement of objectives) or a combination at any point along the continuum from ends to means (impacts, outcomes, outputs, processes and inputs). This vision needed to be rendered in less abstract intentions and objectives, which has led to the creation of a proposed list of clear objectives. The next step was to identify overlaps in the objectives and to combine,

if possible, similar intentions or objectives of the different parts of the technology transfer framework in order to produce synthesized objectives. For each of the synthesized objectives at least one indicator has been suggested.[13]

29. These steps in this process resulted in the following number of indicators derived from the objectives as outlined by the technology transfer framework:

(a) 20 indicators for the key theme technology needs and needs assessment;

(b) Nine indicators for the key theme technology information;

(c) 75 indicators for the key theme enabling environments;

(d) 34 indicators for the key theme capacity-building;

(e) 23 indicators for the key theme mechanisms for technology transfer.

30. The EGTT, at its second regular meeting, guided the initial selection of performance indicators for the five key themes of the technology transfer network, taken from the list of candidate performance indicators derived from the objectives outlined in the technology transfer framework.[14] As a result, the following indicators were selected:

(a) Six indicators for the key theme technology needs and needs assessment;

(b) Five indicators for the key theme technology information;

(c) 12 indicators for the key theme enabling environments;

(d) Four indicators for the key theme capacity-building;

(e) Five indicators for the key theme mechanisms for technology transfer.

31. For the institutions and bodies within the framework of the Convention (COP, the subsidiary bodies, EGTT, etc.) it is taken for granted that the objectives and indicators are in line with what is or was feasible in terms of vision and goals at the time. This does not mean that in the recommendations of the final report no changes can be suggested.

IV. Testing the performance indicators

32. In this chapter a state of play will be given of the testing process of the initial selection of 32 performance indicators taken from the list of candidate performance indicators that were derived from the objectives stipulated in the technology transfer framework.

A. Description of the testing process

33. A methodological sheet was developed to test the initial selection of a set of key performance indicators (see annex I). Similar methodological sheets have been used for other work on performance indicators at the international level.

34. The different fields in the methodological sheet assess, inter alia, the extent to which the performance indicator is SMART.

[13] FCCC/SB/2008/INF.6, annex.
[14] FCCC/SB/2008/INF.6, box 1.

35. Taking into account the concerns expressed by the Parties at the twenty-ninth sessions of the subsidiary bodies, the following points were addressed for each indicator when developing the methodological sheet:

(a) The possibility of subdividing the indicator by targeting mitigation and adaptation, and different sectors;

(b) The possibility of important information being missed out in the causal relationship chain if the initial selection of the performance indicators for a particular key theme is placed into the framework for monitoring and evaluating the effects of policies (see figure 1);

(c) The possibility of suggesting another performance indicator if it is not feasible to continue with the performance indicator that had been initially selected (e.g. due to a lack of data);

(d) The importance of being clear on the stakeholders that are to be involved and targeted;

(e) The possibility of going back to the technology transfer framework to see how the objective was phrased and going back to decision 3/CP.13 for an analysis of the current situation when carrying out the evaluation of the performance indicators;

(f) The need to state in the methodological sheet if data that are not publicly available but could be obtained from an IGO or another stakeholder, or data that need to be obtained from national communications, are required during the course of the work.

36. The problems with regard to data collection were bundled and discussed by the EGTT.

B. Results of the testing process

37. The 32 performance indicators for monitoring and evaluating the technology transfer framework that were initially selected were tested using the standard methodological sheet. The results of the testing process are summarized in annex II to this document. The methodological sheets completed for all of the performance indicators are available on TT:CLEAR.[15]

38. The following practical steps need to be considered when operationalizing the monitoring and evaluation system:

(a) The conclusion of the following agreed arrangements (e.g. a memorandum of understanding), in order to deliver in a SMART manner the data for specific performance indicators:[16, 17]

(i) Agreed arrangements between the UNFCCC secretariat and the GEF, the United Nations Development Programme (UNDP), the United Nations Environment Programme (UNEP) and relevant IGOs. This is important for seven of the 32 performance indicators, in particular for those monitoring and evaluating the key themes technology needs and needs assessments and technology information;

[15] <http://unfccc.int/ttclear/jsp/EGTTDoc/sheets.pdf>.

[16] In the past, the COP requested reporting from IGOs and international organizations. It should be made clear that existing COP decisions should be taken into account when preparing agreements with these organizations.

[17] Within this context, there may be a need to find a common technology typology between the UNFCCC secretariat and IGOs and international organizations, for example, to define programmes and/or projects for capacity building (see PI–TNA–02, PI–TI–01, PI–CB– 03).

(ii) Agreed arrangements with relevant international organizations and bodies (International Energy Agency (IEA), Consultative Group on International Agricultural Research (CGIAR), etc.). The information obtained from these organizations would be needed to document five indicators monitoring and evaluating the implementation of the key theme enabling environments;

(b) The possibility of modifying the guidelines for national communications[18] or developing templates to guide reporting in national communications[19] needs to be investigated by the subsidiary bodies in order to receive from Parties the data needed for specific key performance indicators. This is needed for 14 of the 32 performance indicators, mainly those for monitoring and evaluating the key themes enabling environments and capacity-building. The other performance indicators are expected to be derived using data from the UNFCCC secretariat.

39. In order to determine the overall time frame for monitoring and evaluation that could be suggested, it is important to look at the following possible constraints for delivering the different data (regarding the time-bound element of SMART):

(a) The following constraints apply to national communications:

(i) Under the Convention, all Parties should report on the steps they are taking to implement the Convention (Article 4, paragraph 1 and Article 12). Annex I Parties are requested to submit their fifth national communication by 1 January 2010. Based on past experience, the compilation and synthesis of this information is normally completed by the secretariat within two years of the date of submission;

(ii) Non-Annex I Parties have a different timetable for the submission of national communications, which has yet to be decided;

(b) National capacity self-assessments (NCSAs) and national adaptation programmes of action (NAPAs) are not time-bound, but related databases are/can be updated on a regular basis;

(c) The first synthesis report of TNAs was published in 2006 and the second one is expected in 2009;

(d) Other synthesis reports, such as on capacity-building needs for development deployment, diffusion and transfer of technologies could be published at similar intervals (i.e. every three years);

(e) National sustainable development strategies are not time-bound, but the national reports to the United Nations Commission on Sustainable Development (UNCSD) are submitted every two years, in accordance with their multi-year programme (i.e. 2008, 2010, 2012 and so on);

[18] This refers to the considerations given to the operationalization of the Bali Action Plan, such as the NAMAs that could be reported.

[19] In the past there have been efforts, outside the adopted guidelines for national communications, to give specific guidance to Parties on reporting, such as the template for reporting on technology transfer (e.g. the work of the Consultative Group of Experts), capacity-building, etc.

(f) The data needed for the other performance indicators that are mostly available from the IGOs, international organizations or the UNFCCC secretariat seem to be accessible each year.

40. The EGTT is considering the timing and frequency of monitoring and evaluating the effectiveness of the implementation of the technology transfer framework, including the possibility of initiating a pilot activity by 2010 by using the proposed performance indicators on the basis of existing information. Based on the information contained in paragraphs 38 and 39 above, it may be observed that full monitoring and evaluation of the effectiveness of the implementation of the technology transfer framework could possibly be carried out in 2012. Within this context, it is assumed that the recommendations in paragraph 38 above have been followed.

41. Particular problems with data collection for each key theme of the technology transfer framework are discussed in paragraphs 42–46 below.

Technology needs and needs assessments

42. In order to move forward in the short term it is recommended that the focus for monitoring and evaluation be placed on the efforts made within various organizations, bodies and partnerships (GEF, UNDP, UNEP, etc.). This applies to PI-TNA-01, PI-TNA-02, and PI-TNA-03 in particular. To enable the UNFCCC secretariat to obtain the data needed in time, a special arrangement should be made between the secretariat and relevant IGOs. This would mean that the six performance indicators could be used to track in a SMART manner the effectiveness of the implementation for the key theme technology needs and needs assessments of the technology transfer framework.

Technology information

43. The recommendation made for performance indicators under TNAs could help move the testing process forward in the short term (PI-TI-01). Regarding PI-TI-02, it should be noted that this information on technology transfer activities is available in national communications and is synthesized regularly by the UNFCCC secretariat. This means that the five performance indicators can track in a SMART manner the effectiveness of the implementation for the key theme technology information of the technology transfer framework.

Enabling environments

44. For seven out of 12 performance indicators information reported in national communications needs to be obtained (see para. 38 above). The data for most of the other indicators can be derived from other sources (World Bank, World Intellectual Property Organization, IEA, CGIAR and UN CSD). One of the indicators (PI-EE-11) can be documented with information obtained from TNAs.

Capacity-building

45. The recommendation made for performance indicators under TNAs could help move the process forward in the short term for the performance indicator PI-CB-01. For the other indicators information reported in national communications, NCSAs, NAPAs and TNAs has to be obtained (see para. 38 above).

Mechanisms for technology transfer

46. Two of the performance indicators can be documented by the secretariat. For the other indicators information reported in national communications and NAPAs has to be obtained (see para. 38 above).

V. Selecting indicators for financial flows

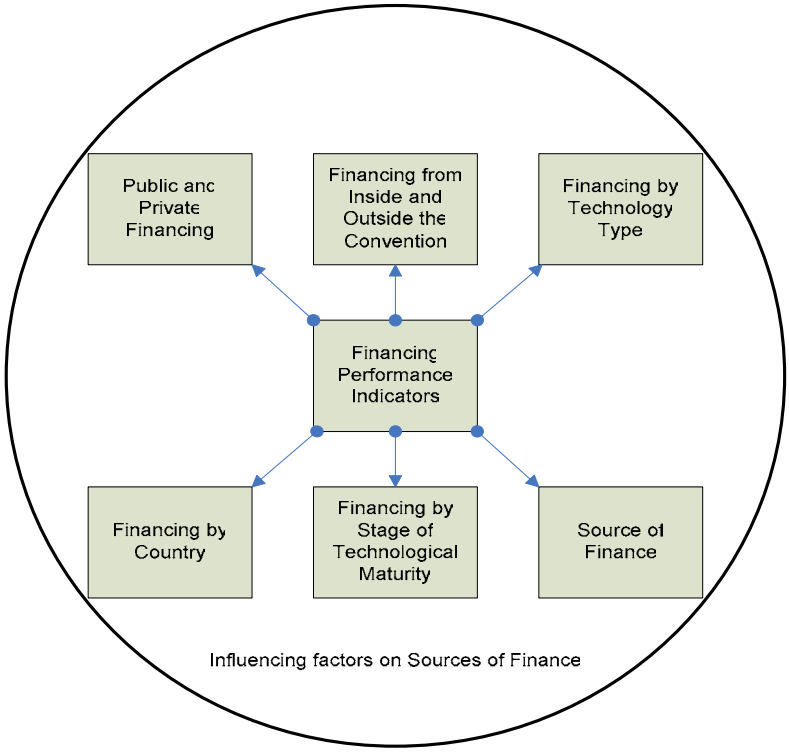
47. In paragraph 79 of document FCCC/SB/2008/INF.6, reference was made to an analysis of possible influences of financial flows for supporting the development and transfer of technologies.

A. Conceptual framework

Indicators of sources of finance

48. There are several options that could be considered when characterizing indicators for sources of finance for climate friendly technologies. Each option has particular benefits and allows for the evaluation of financing from different perspectives. Figure 2 illustrates some of the options that could be considered.

Figure 2. Options for characterizing indicators of financial sources



49. Figure 2 shows that all sources of finance (and therefore the indicators that monitor the performance of that source of finance) are set within a context of influencing factors, of which there may be many (see chapter VI).

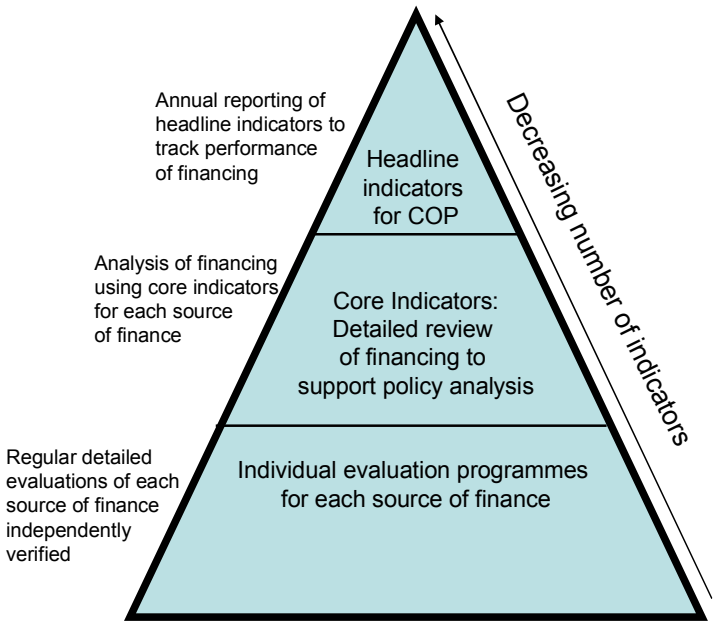
50. The public and private share of financing is an important attribute to capture in a set of performance indicators because it allows policymakers to determine the overall effectiveness of public investment in mobilizing (or leveraging) private sector investment. Similarly, the extent to which financing is occurring within and outside the Convention can provide useful information for policymakers on the role of the Convention as a catalyst for financing climate friendly technologies.

51. Information on financing by technology type can be useful for exploring the extent to which least cost abatement is occurring in the economy and can be compared with estimates of future financing needs for key technologies. Similarly, by tracking the level of investment by stage of technological maturity, it is possible to evaluate whether there is under- or over-investment in particular technology stages[20] and if policies and measures are facilitating technology development across the technology innovation chain.

[20] FCCC/SB/2008/INF.7.

52. Country-level data are very useful for understanding the national distribution of financing. These data may indicate where the barriers to financing are most pronounced and may help focus capacity-building efforts and support for the creation of enabling environments. Such information is important for national policy planning (e.g. TNAs, NAPAs) and may assist countries in maximizing the potential for investment in climate friendly technologies.

Figure 3. A possible system of nested indicators for sources of finance



Abbreviation: COP = Conference of the Parties.

53. Indicators of individual sources of finance may allow for a more complete picture of financing. However, due to the large number of financial sources, this may result in a large number of indicators. The benefit of indicators of individual sources of finance would be that such indicators could draw on the evaluations conducted for each source of finance. It may be possible to nest indicators so that they could be aggregated and disaggregated to provide analysts, negotiators and decision makers at various levels with information on financial sources that are most suited to their needs. This would reduce the overall reporting burden and the number of indicators to be considered by the COP, while maintaining the ability to obtain a more detailed picture of the performance of financing for climate friendly technologies. Figure 3 presents a potential model for nested indicators for sources of finance.

54. For the reasons mentioned in paragraph 53, it is recommended that indicators of financing for climate friendly technologies be developed in the first instance from a source of finance perspective rather than the other perspectives mentioned in figure 2. A possible approach to aggregating sources of finance is presented in table 1, where sources are grouped as follows:

(a) Financial mechanism and funds under the Convention (including the Kyoto Protocol Adaptation Fund);

(b) Kyoto Protocol flexibility mechanisms;

(c) Bilateral sources (including export credit agencies);

(d) National sources;

(e) Multilateral sources;

(f) Private financing sources.

Identifying influencing factors

55. The EGTT has adopted a model of the relationship between performance indicators that is widely used and accepted, which creates a framework for evaluating the causal chain of actions taken to implement the technology transfer framework. Under this model, society sets goals and allocates certain inputs (e.g. financial resources) that are used to create outputs (e.g. business plan for technology deployment), which in turn lead to outcomes (e.g. installed capacity of technology) and impacts (e.g. climate change impacts avoided, emission reductions) that should be consistent with the goals set by society.

56. These indicators are defined as direct indicators, but as the arrows in figure 1 also illustrate, the ratio of these direct indicators can create additional efficacy indicators that measure the relative performance across the causal chain of indicators. Efficiency is a function of inputs/outputs or outcomes; effectiveness is a function of the extent to which outcomes and impacts are consistent with societal goals; and relevance is a measure of the extent to which goals continue to reflect societal expectations.

57. Figure 1 provides a useful framework for structuring performance indicators. However, it may not cover the full scope of indicators, as it does not show the influences on investment and financial flows that are usually presented as input indicators (but are sometimes presented as output indicators). For this reason, a clear link should be made showing that external factors influence the financing inputs/outputs to technology development and transfer. As discussed previously in paragraph 20 above, the terms of reference for this work specifically request that not only indicators of financial sources (e.g. how much finance is available), but also indicators that reflect reliably what could be influencing these patterns of investment be identified and tested.

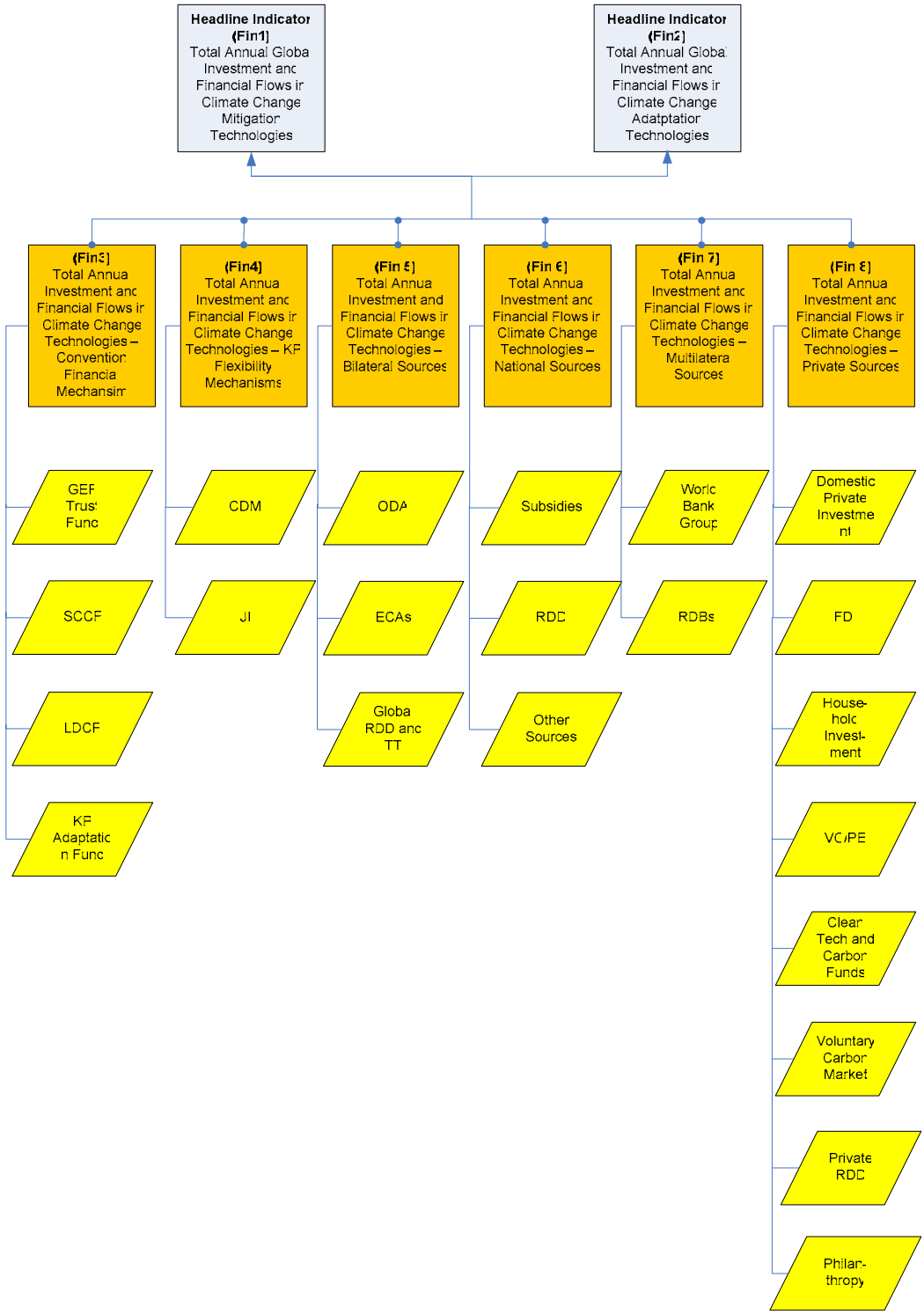
58. This aspect of the terms of reference for this work is interpreted as meaning that the EGTT are seeking indicators of factors that influence sources of finance. The major influencing factors on investment in research and development, demonstration, and deployment stage technologies have been mapped, as well as the influencing factors for each source of finance.

59. Each source of finance may be influenced by many different factors and if indicators are developed to monitor these influences, the number of performance indicators required may grow significantly. Some of the main influencing factors may be suited to the use of indicators, but, as discussed in the background paper and interim report on performance indicators, there is a range of alternative evaluation techniques that may be better suited to analysing the influencing factors on sources of finance. The GEF and World Bank evaluation methodologies may provide examples to draw upon.

Table 1. Possible aggregation of financial sources

Aggregating sources of finance for climate change related technology development, deployment, diffusion and transfer	
Under the Convention	
Financial mechanism and funds under the Convention	Global Environment Facility Trust Fund
	Special Climate Change Fund (Global Environment Facility)
	Least Developed Country Fund (Global Environment Facility)
	Kyoto Protocol Adaptation Fund (Global Environment Facility)
Kyoto Protocol flexibility mechanisms	Clean development mechanism
	Joint implementation
Outside of the Convention	
Bilateral sources	Official development assistance
	Export credit agencies
Needs to be divided into bilateral and multilateral financing	International and national technology research development and technology transfer programmes
National sources	Technology and business incubators
	National subsidies
Multilateral sources	World Bank Group (including Climate Investment Funds)
	Regional development banks (including many organizations, investment funds and strategies)
Private investment	Domestic private investment
	Foreign direct investment
	Household investment
	Venture capital and private equity
	Clean technology and carbon funds
	Voluntary carbon market
	Private technology research and development programmes
	Philanthropic sources

Figure 4. Proposed hierarchy of nested financing indicators and sources of finance



Abbreviations: CDM = clean development mechanism, ECAs = export credit agencies, FDI = foreign direct investments, GEF = Global Environment Facility, JI = joint implementation, KP = Kyoto Protocol, LDCF = Least Developed Countries Fund, ODA = official development assistance, RDB = regional development banks, RDD = research, development and deployment, SCCF = Special Climate Change Fund, TT = technology transfer, VC/PE = venture capital/private equity.

B. Candidate indicators for financial flows

60. Candidate indicators have been developed for each aggregated source of finance following the approach described in paragraphs 53–54.

61. It is recommended that two headline indicators be used that would aggregate all sources of investments in mitigation and adaptation technologies.

62. The recommended set of candidate indicators is also presented in annex II to this document (see PI-FIN-01 to PI-FIN-08). Figure 4 gives a proposed hierarchy of nested financing indicators and sources of finance.

VI. Linking influencing factors for financial flows to performance indicators

63. It has not yet been established whether or not the influencing factors identified can be related to the technology transfer framework, in particular to the performance indicators for monitoring and evaluating the effectiveness of the implementation of this framework.

64. The different influencing factors for research and development, demonstration, and deployment are linked to the initial selection of performance indicators and are listed in table 2. From the overview provided in this table, it can be concluded that most of the influencing factors can be (partially) monitored and evaluated by at least one performance indicator.

65. The following five influencing factors are not covered by a performance indicator:

(a) Additionality of private and public research and development (R&D) effort (R&D and demonstration);

(b) Social acceptance of new technologies (deployment);

(c) Government budgetary situation (R&D, demonstration and deployment);

(d) Availability of physical resources (demonstration and deployment);

(e) Access to finance for actors in non-Annex I countries (R&D, demonstration and deployment).

66. Although for the institutions and bodies within the framework of the Convention it is taken for granted that the objectives and indicators are in line with what is or was feasible in terms of vision and goals at the time, it might be useful to perform a more in-depth review of the links between the influencing factors and the relevant performance indicators.

67. For the diffusion stage of technology maturity, it is more difficult than for the research and development, demonstration, and deployment stages to link the following influencing factors with the performance indicators:

(a) Price developments of inputs and outputs;

(b) Technological stage of maturity and potential for cost and risk reduction;

(c) Trends in, and potential for, market development;

(d) Institutional situation and transparency;

(e) Government policy stability and policy clarity;

(f) Competitiveness against alternatives/incumbent technologies;

(g) Government support for low carbon technology;

(h) General macroeconomic and investment climate;

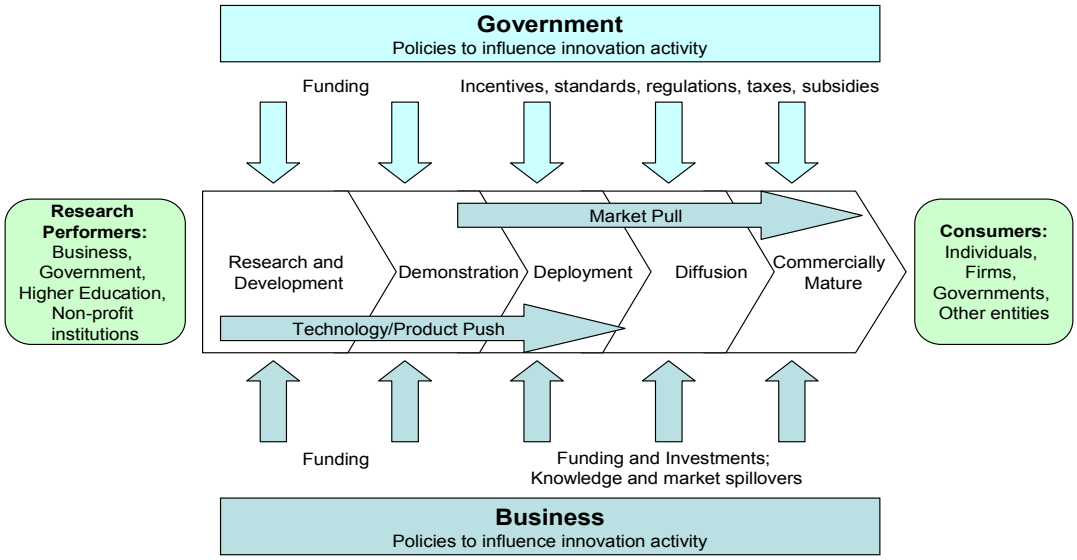
(i) Availability of objective and reliable information on potential investments;

(j) Public awareness and acceptability of certain technologies.

68. In a sense, the difficulty in linking the influencing factors mentioned in paragraph 67 above with performance indicators can be explained by the technology innovation chain (see figure 5). Although it can be observed from this figure that the role of the government is thought to have the same level of importance along the innovation chain, the business community has a bigger impact when moving towards the diffusion stage of technology maturity. Therefore, it is not surprising that governments meeting at the multilateral level (e.g. at the COP) have been focusing on their role and the role of IGOs. This is reflected in the objectives of the technology transfer framework and the initial selection of performance indicators.

69. From this analysis of linking influencing factors with performance indicators, it can be concluded that no performance indicator relating to the objectives defined in the technology transfer framework for the key themes technology needs and needs assessments and technology information is relevant to reflect influencing factors for financial flows. With the exception of one performance indicator, all of the performance indicators for the key theme enabling environments are important in this regard. Two out of four performance indicators for the key theme capacity-building and three out of five indicators for mechanisms for technology transfer (partly) cover influencing factors for financial flows.

Figure 5. The technology innovation cycle



Source: Based on Metz B, Davidson O, Bosch P, Dave R and Meyer L (eds). *Climate Change 2007: Mitigation. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge and New York: Cambridge University Press. p.157, figure 2.3.

Table 2. Influencing factors of financial flows linked to the performance indicators of the technology transfer framework

Influencing factors	Research and development	Demonstration	Deployment	Indicators
Skill and existing infrastructure capacity of public research and development institutions	✓	✓	✓	PI-CB-03/04 PI-MECH-05
Additionality of private and public research and development effort	✓	✓		/
Social acceptance of new technologies			✓	/
Technical risks and barriers		✓	✓	PI-EE-11 PI-MECH-04
Government and private economic development strategies	✓	✓	✓	PI-EE-09
Regulatory frameworks and infrastructure restrictions and interdependencies		✓	✓	PI-EE-04
Government budgetary situation	✓	✓	✓	/
Legal framework for intellectual property and mechanisms for reducing the risk for private sector investors	✓	✓	✓	PI-EE-01
Government incentives for private investment in research and development	✓	✓	✓	PI-EE-02/03/04
Availability of physical resources		✓	✓	/
Market potential for climate friendly technologies	✓	✓	✓	PI-EE-08/10
General health of the economy; business capacity for investment	✓	✓	✓	PI-EE-08/10
Information asymmetry (presence of measures that connect financiers with technology developers and potential demonstration projects)		✓	✓	PI-EE-12 PI-MECH-01
Access to finance for actors in non-Annex I countries	✓	✓	✓	/

VII. Major findings and proposals, and next steps

A. Major findings and proposals

70. The participative design process is used for developing and testing a set of performance indicators to monitor and evaluate the effectiveness of the implementation of the technology transfer framework. This process has confirmed the following major findings from other relevant initiatives within and outside the Convention:

(a) The process is on a learning curve;

(b) The framework with the causal relationship should be kept in mind;

(c) The performance indicators need to be expressed in a SMART manner;

(d) Data availability is the major constraint in each indicator exercise;

(e) The involvement of stakeholders is important for creating a sense of ownership;

(f) There is a need to ensure capacity-building.

71. Respecting the integrity of the technology transfer framework, as reflected by the synthesized objectives, the initial selection of 32 indicators has been confirmed by the EGTT. Possible modifications have been formulated (see annex II), based on the testing using the methodological sheets. The eight indicators for monitoring and evaluating financial flows have been added to the selection of the 32 performance indicators.

72. It should be made clear that this selection is not prejudging any post-2012 arrangement. When the COP reaches a new decision on the development and transfer of technologies, performance indicators can be developed further or deleted.

73. This work on performance indicators by the EGTT may contribute to the work being carried out under the AWG-LCA on matters relating to "measurable, reportable and verifiable", as referred to in paragraph 1 (b) (ii) of the Bali Action Plan, on the following matters:

(a) The standard methodological sheet may assist Parties with the operationalization of some aspects of measurable, reportable and verifiable;

(b) The performance indicators related to finance and capacity-building might be relevant for operationalizing paragraph 1 (b) (ii) of the Bali Action Plan;

(c) The indicator technology programmes/projects from TNAs implemented (PI-TNA-06) refers in its methodological sheet to NAMAs.

74. In order to set up a system for monitoring and evaluating the effectiveness of the implementation of the technology transfer framework, there is a need to obtain in a SMART manner the data for specific key performance indicators and there is a need for a possible agreed arrangement between the UNFCCC secretariat, and relevant IGOs and international organizations. Within this context, there may be a need to find a common technology typology between the UNFCCC secretariat, IGOs and international organizations.

75. Furthermore, as part of the post-2012 arrangement, the guidelines for national communications could be specified or a template to guide reporting in national communications could be developed so that the data needed for specific key performance indicators is received from Parties.

76. However, the UNFCCC secretariat does not have a common practice for concluding agreed arrangements (e.g. memoranda of understanding) for obtaining data from IGOs and international organizations. Revising the guidelines for national communications or developing templates has never been a smooth operation in the past. Therefore, it might be an option to reduce the number of performance indicators by focusing on the indicators with a high (to medium) feasibility, knowing that only part of the technology transfer framework will be covered by these indicators and that performance indicators that reflect influencing factors for financial flows will be deleted. Based on the information contained in annex II, table 3 gives an overview of the different options for ranking the performance indicators according to feasibility and relevance.

77. The timeline for obtaining data for the different performance indicators varies from one year to three years up to a non-fixed time interval (see data in the national communications of non-Annex I Parties). However, it may be observed that full monitoring and evaluation of the effectiveness of the implementation of the technology transfer framework could possibly be carried out in 2012 on the condition that the proposals mentioned in paragraphs 74 and 75 above are implemented. As part of the learning curve, piloting the performance indicators based on existing information could precede monitoring and evaluation.

78. Furthermore, as part of the piloting of some performance indicators on the basis of existing information by 2010, and taking into account the post-2012 arrangement, it may be useful to address the missing link between the performance indicators for the technology transfer framework and the influencing factors (see chapter VI).

79. It is important to reflect on the way the evaluation is operationalized (multicriteria analysis, weighing factors, core versus optional indicators, regional diversification, static versus dynamic evaluation, etc.).

Table 3. Ranking the performance indicators according to feasibility and relevance

	Relevance		
Feasibility	**High**	**Medium**	**Low**
High	PI-TNA-<u>01</u>/<u>03</u>/04/05 PI-TI-02/03/04/05 PI-MECH-02/05 PI-FIN-03	PI-EE-07/12 PI-FIN-04	
Medium	PI-TNA-<u>06</u> PI-EE-<u>01</u>/02 PI-CB-<u>01</u> PI-MECH-03/04 PI-FIN-01/02	PI-TNA-<u>02</u> PI-TI-<u>01</u> PI-FIN-05/06/07/08	PI-EE-11
Low	PI-CB-03/04 PI-MECH-01 PI-EE-06/09	PI-EE-04/05/<u>08</u>/10 PI-CB-02	PI-EE-03

Note: The notions feasibility and relevance are explained in annex II. It should be noted that possible modifications to the performance indicators listed in document FCCC/SB/2008/INF.6 can result in a new ranking. This new ranking is indicated in this table by underlining the number of the performance indicator.

B. Next steps

80. A draft final report[21] will detail work in progress up to the thirtieth sessions of the subsidiary bodies that will take place from 1–10 June 2009 in Bonn, Germany.

81. The final report of this work will be made available at COP 15 and will contain recommendations for using the performance indicators. It will build on experiences with the testing of these performance indicators. The following key elements are to be considered:

(a) The analysis of the potential efforts and resource requirements for implementing the performance indicators;

(b) The analysis of potential linkages of this work with other relevant work under the SBI, AWG-LCA and SBSTA;

(c) The preparation of the recommendations based on the outcomes of tasks I and II (see para. 15), and the consideration of the outcomes of other relevant activities. These recommendations could include a list of indicators, the methodology and data sheets used and examples of how the indicators are used;

(d) The proposal of a programme of work for conducting the assessment of the effectiveness of the technology transfer framework and development of best practices for using the indicators;

(e) The provision and dissemination of a summary of the outcomes of tasks I, II and III (see para. 15).

[21] FCCC/SB/2009/INF.1.

Annex I

Standard methodological sheet

Description of the performance indicator

Name	Brief title
Brief definition	Short and unique definition of what will be measured.
Detailed description	An elaboration of the brief definition, in which notions and concepts are explained so that the performance indicator cannot be interpreted ambiguously.
Unit of measurement	Unit or dimension of the data (abbreviation and in full) that make up the performance indicator, such as number, percentage, currency, etc.
Classification	Place in the framework for monitoring and evaluating the effects of policies: input, process, output, outcome or impact.
Key theme	In relation to which key theme of the technology transfer framework (technology needs and needs assessments, technology information, enabling environments, capacity-building or mechanisms for technology transfer) the performance indicator has been formulated.
Code (ID)	This code is an identification number used during follow-up, for example in a database.

Policy relevance

Purpose	What is the policy relevance of the performance indicator? In other words, to which goal/objective/intention/activity/action of the technology transfer framework is the performance indicator related?
Relevance to sustainable development	Performance indicators for measuring and evaluating the effectiveness of the technology transfer framework should take into account the contribution to sustainable development of the performance indicator in question. This needs to be mentioned explicitly in the methodological sheet.
International conventions and agreements	References to international conventions and/or agreements, if any.
International targets and recommended standards	If available, this information should be provided so that the differences between the targets/standards can be understood.
Linkages to other performance indicators	For a better understanding of the cross-linkages within and between the key themes of the technology transfer framework.

Methodological description

Underlying definitions and concepts	The description of the performance indicator may need further clarification with regard to underlying definitions and concepts.
Limitations of the performance indicator	In addition to defining what a performance indicator is measuring, the limitations of the performance indicator also have to be explained. For example, how do external effects influence outcome and impact indicators? Is it possible to assess the efficiency or effectiveness with the indicator?
Status of the methodology	This box needs to address whether the performance indicator is 'common', in other words if the methodology is well developed.

Assessment of data

Monitoring of data	Detailed description of which data are needed and how they can be collected.
Data availability	Where and when are the data available? Would a comparison in terms of time and between countries/regions be useful?
Data collection limitations	For example, scale, actualization, accuracy, periodicity, validity, privacy regulations, costs, etc.
References	Data source
Development of new data	If the data required for the performance indicator are not available, what steps could be taken to develop new data in the future?

Alternative definition(s) or performance indicator(s)

Second-best performance indicator	A performance indicator is formulated from a vision and objectives. If there are limitations in methodology, data collection, etc., it might not be possible to continue with this conceptual performance indicator. Therefore, it is advisable to formulate a second-best performance indicator.

References

Readings	References to related background information (books, journals, etc.).
Internet sites	References to internet sites.

Factual data and evaluation

Factual data represented in a table	Reference to an annex containing the data, for example in an Excel file.
Factual data represented in a graph	Reference to an annex containing a representation of the data, for example in a graph.
Discussion	The factual data are discussed objectively. The discussion is a description of what is contained in the table and/or graph. When rendering the objectives less abstract, it needs to be reported if wording such as "in a position to do so", "as appropriate", "encouraged", have been omitted at an early stage in the 'unravel' exercise.
Evaluation	This is an evaluation of the evolution of the performance indicator with regard to what can be expected, for example in relation to targets or standards.

Annex II

Summary of the testing process

With reference to the document FCCC/SB/2008/INF.6, a draft methodological sheet has been developed for each of the 32 performance indicators. A summary of the results of the testing, with a focus on the assessment of data, is provided in this annex. The columns in table 4 should be understood as follows:

(a) Code (ID): a unique code given to each performance indicator;[1]

(b) Performance indicator (as formulated in document FCCC/SB/2008/INF.6): the name of the performance indicator used in the methodological sheet;

(c) Feasibility is related to the following questions:

(i) Are there sufficient data available to calculate the performance indicator?;

(ii) Can the performance indicator be uniquely compiled? (i.e. using a verifiable, well defined way of calculating performance indicators);

(iii) Is it possible to calculate the performance indicator completely?;

(d) Relevance relates to the following questions:

(i) Does the performance indicator clearly represent achievement of the objective (synthesized objectives and original objectives)?;

(ii) Is the performance indicator technically and politically convincing?;

(e) Possible modification (after testing using the methodological sheet): the results of the testing allowed, in some cases, to suggest a possible modification to the performance indicators that had been initially selected;

(f) Data collection: indicates who should deliver the data or where the data should be collected;

(g) Parties' involvement: indicates if Parties are involved, and if so which ones, when calculating the performance indicator.

[1] This code is composed of the following elements: PI = performance indicator, XXX = key theme of the technology transfer framework, YY = number of the performance indicator under the relevant key theme. For example, PI-TNA-03 is the third performance indicator, as selected in document FCCC/SB/2008/INF.6, for the key theme technology needs assessment.

Table 4. Summary of the testing process for the performance indicators[a]

Code (ID)	Performance indicator (as formulated in document FCCC/SB/2008/INF.6)	Feasibility (High, medium, low) Relevance to synthesized objective (High, medium, low)	Possible modification of the performance indicators (after testing using the methodological sheet)	Data collection	Parties' involvement
Technology needs and needs assessments					
PI-TNA-01	Financial resources for TNAs	*Medium* / <u>High</u> feasibility High relevance	None. If the focus is on financial resources for TNAs through multilateral efforts, the feasibility changes from medium to high.	Multilateral: GEF, UNDP, UNEP *Bilateral:* national communications	All Parties
PI-TNA-02	Programmes/projects for capacity-building on TNAs	*Low* / <u>Medium</u> feasibility Medium relevance	None. However, this indicator needs to be further developed in relation to the capacity-building performance indicators. If the focus is on efforts at the multilateral level, the feasibility changes from low to medium.	Multilateral: IGOs *Bilateral:* national communications	All Parties
PI-TNA-03	Targeted non-Annex I Parties	*Medium* / <u>High</u> feasibility High relevance	None. If the focus is on the multilateral level, the feasibility changes from medium to high.	Multilateral: GEF, UNDP, UNEP *Bilateral:* national communications	All Parties
PI-TNA-04	Published TNAs that have been completed or updated	High feasibility High relevance	None	UNFCCC secretariat, GEF, UNDP, UNEP	
PI-TNA-05	Synthesis report on TNAs	High feasibility High relevance	None	UNFCCC secretariat	

[a] In the feasibility and relevance, and data collection columns, italics and underlined text are used to demonstrate that the feasibility and relevance to the synthesized objective change depending on whether the focus is on the multilateral or the bilateral level. For example, the feasibility of the performance indicator targeted non-Annex I Parties will change from medium to high if the focus is on the multilateral level.

Table 4 (continued)

Code (ID)	**Performance indicator (as formulated in document FCCC/SB/2008/INF.6)**	**Feasibility (High, medium, low)** **Relevance to synthesized objective (High, medium, low)**	**Possible modification of the performance indicators (after testing using the methodological sheet)**	**Data collection**	**Parties' involvement**
PI-TNA-06	Technologies from TNAs implemented	*Low* / Medium feasibility High relevance	None. If the focus is on the multilateral level, the feasibility changes from low to medium. However, there is a recommendation, looking at the post-2012 process, to include bilateral efforts reported in national appropriate mitigation actions and national communications.	UNFCCC secretariat, GEF and implementing agencies	Non-Annex I Parties
Technology information					
PI-TI-01	Training programmes and workshops for building capacity on technology information	*Low* / Medium feasibility Medium relevance	None. However, this indicator needs to be further developed in relation to the capacity-building performance indicators. If the focus is on efforts at the multilateral level, the feasibility changes from low to medium.	Multilateral: IGOs *Bilateral*: national communications	All Parties
PI-TI-02	National communications with information on technology transfer activities	High feasibility High relevance	None	National communications	All Parties
PI-TI-03	Information on maintaining, updating and developing TT:CLEAR	High feasibility High relevance	None	UNFCCC secretariat	
PI-TI-04	Technology information centres and networks connected to TT:CLEAR	High feasibility High relevance	None	UNFCCC secretariat	

Table 4 (continued)

Code (ID)	**Performance indicator (as formulated in document FCCC/SB/2008/INF.6)**	**Feasibility (High, medium, low)** **Relevance to synthesized objective (High, medium, low)**	**Possible modification of the performance indicators (after testing using the methodological sheet)**	**Data collection**	**Parties' involvement**
PI-TI-05	Users of TT:CLEAR in developing countries	High feasibility High relevance	None	UNFCCC secretariat	
Enabling environments					
PI-EE-01	Performance on the World Bank's Governance Indicators	*High* / Medium feasibility *Medium* / High relevance	It could be questioned if the indicators that were initially selected reflect the synthesized objective properly. Therefore, it is suggested that the UNFCCC secretariat and WIPO look into the possibility of developing an alternative indicator based on existing or planned data collection. Changing from a performance indicator based on data collection from the World Bank to data collection from WIPO could result in a decrease in feasibility, but an increase in relevance.	World Bank and/or WIPO	
PI-EE-02	Volume (number and value in USD) of joint R&D opportunities	Medium feasibility High relevance	The number of government agencies that regularly access and use TT:CLEAR as a primary source of information on joint R&D opportunities.	Mitigation: Climate Technology Initiative/ International Energy Agency (or consolidated via TT:CLEAR) Adaptation: Consultative Group on International Agricultural Research	

Table 4 (continued)

Code (ID)	**Performance indicator (as formulated in document FCCC/SB/2008/INF.6)**	**Feasibility (High, medium, low)** **Relevance to synthesized objective (High, medium, low)**	**Possible modification of the performance indicators (after testing using the methodological sheet)**	**Data collection**	**Parties' involvement**
				(or consolidated via TT:CLEAR)	
PI-EE-03	Presence of clear policy guidelines to recipients of public funding on how to move from R&D to the commercialization of ESTs	Low feasibility Low relevance	An alternative indicator to this one could be the presence of government support for moving ESTs from the R&D phase into the commercialization phase for adaptation and mitigation technologies. None of this information is made available in national communications at present.	National communications	Non-Annex I Parties
PI-EE-04	Number of bilateral or multilateral programmes that have helped developing countries develop and implement regulations for promoting ESTs	Low feasibility Medium relevance	An alternative indicator to this one could be the presence of policies or guidelines that require the adoption of adaptation and mitigation technologies that have taken into account developing country circumstances. None of this information is made available in national communications at present.	National communications	All Parties
PI-EE-05	Presence of tax preferences and incentives on imports/exports of ESTs	Low feasibility Medium relevance	Since it is not possible to obtain information on the presence of tax preferences and incentives on imports of ESTs in developing countries in the same performance indicator as exports on ESTs from developed countries, the following two	National communications	Non-Annex I Parties Annex I Parties

Table 4 (continued)

Code (ID)	Performance indicator (as formulated in document FCCC/SB/2008/INF.6)	Feasibility (High, medium, low) Relevance to synthesized objective (High, medium, low)	Possible modification of the performance indicators (after testing using the methodological sheet)	Data collection	Parties' involvement
			possibilities have to be considered: (i) PI-EE-06 is a performance indicator for the same synthesized objective that focuses on incentives for export from developed countries. Therefore deleting exports from the indicator PI-EE-05 could be considered; (ii) PI-EE-05 is split into two parts; Part A focuses on imports to developing countries and Part B focuses on exports from developed countries. None of this information is made available in national communications at present.		
PI-EE-06	Volume of export credits	Low feasibility High relevance	An alternative to this indicator could be the presence of export credit programmes to encourage the transfer of ESTs. None of this information is made available in national communications at present.	National communications	Annex I Parties
PI-EE-07	Presence of EST transfer in NSDS	High feasibility Medium relevance	None	NSDS, UNCSD	All Parties

Table 4 (continued)

Code (ID)	**Performance indicator (as formulated in document FCCC/SB/2008/INF.6)**	**Feasibility (High, medium, low)** **Relevance to synthesized objective (High, medium, low)**	**Possible modification of the performance indicators (after testing using the methodological sheet)**	**Data collection**	**Parties' involvement**
PI-EE-08	Rating of investment climate according to the World Bank	Low feasibility *High* / Medium relevance	Since it seems that this indicator is not updated frequently (the publicly available data are from 1999 and 2000), the following alternative performance indicator could be suggested: value of incentives (in USD), including 'smart subsidies' and risk coverage, provided to encourage private firms to transfer ESTs to developing countries.	World Bank or national communications	Non-Annex I Parties
PI-EE-09	Percentage of government procurement budget on ESTs	Low feasibility High relevance	An alternative indicator could be the existence of law incentivizing or mandating government agencies to procure ESTs. None of this information is made available in national communications at present.	National communications	Non-Annex I Parties

Table 4 (continued)

Code (ID)	Performance indicator (as formulated in document FCCC/SB/2008/INF.6)	Feasibility (High, medium, low) Relevance to synthesized objective (High, medium, low)	Possible modification of the performance indicators (after testing using the methodological sheet)	Data collection	Parties' involvement
PI-EE-10	Degree of disclosure and transparency regarding approval process	Low feasibility Medium relevance	This performance indicator is extremely broad and leaves much room for interpretation. Therefore, it is suggested that a new formulation in line with the objective of the technology transfer framework, which is to explore transparent and efficient approval procedures for technology transfer projects, be identified and that experiences in IGOs and international organizations be drawn upon. Elements such as the number of steps needed and time taken to approve technology transfer projects in host countries are important.	National communications	Non-Annex I Parties
PI-EE-11	Counting and rating studies that explore barriers, good practices, and recommendations for ESTs	Medium feasibility Low relevance	An alternative indicator could be the periodic assessment of barriers and good practices for enhancing enabling environments as reported in the national communications of Parties. This information could be derived from TNAs.	TNAs/UNFCCC secretariat	Non-Annex I Parties
PI-EE-12	Percentage of participation in partnerships	High feasibility Medium relevance	An alternative indicator could be the number of partnerships that focus on improving enabling environments for ESTs.	UN CSD	

Table 4 (continued)

Code (ID)	Performance indicator (as formulated in document FCCC/SB/2008/INF.6)	Feasibility (High, medium, low) Relevance to synthesized objective (High, medium, low)	Possible modification of the performance indicators (after testing using the methodological sheet)	Data collection	Parties' involvement
Capacity-building					
PI-CB-01	Financial resources for capacity-building	*Low* / Medium feasibility High relevance	None. If the focus is on efforts at the multilateral level, the feasibility changes from low to medium.	Multilateral: IGOs *Bilateral*: national communications	All Parties
PI-CB-02	Needs and priorities for capacity-building	Low feasibility Medium relevance	None. This information is made hardly available at present.	NCSAs, national communications, NAPAs, TNAs	Non-Annex I Parties, LDCs
PI-CB-03	Participants and experts in capacity-building for DTT	Low feasibility High relevance	None. This information is made hardly available at present.	NCSAs, national communications.	Non-Annex I Parties
PI-CB-04	National and regional institutions on capacity-building operating as centres of excellence for DTT	Low feasibility High relevance	None. This information is made hardly available at present.	National communications	Non-Annex I Parties
Mechanisms for technology transfer					
PI-MECH-01	Innovative public/private financing mechanisms and instruments	Low feasibility High relevance	None. This information is made hardly available at present.	National communications	All Parties
PI-MECH-02	Cooperation between the UNFCCC and other multilateral environmental agreements	High feasibility High relevance	None	UNFCCC secretariat	
PI-MECH-03	References to the objectives of other multilateral environment	Medium feasibility High relevance	None. Some of this information is made available in national communications at present.	National communications	All Parties

Table 4 (continued)

Code (ID)	Performance indicator (as formulated in document FCCC/SB/2008/INF.6)	Feasibility (High, medium, low) Relevance to synthesized objective (High, medium, low)	Possible modification of the performance indicators (after testing using the methodological sheet)	Data collection	Parties' involvement
	agreement				
PI-MECH-04	Barriers and good experiences in the development of endogenous technologies	Medium feasibility High relevance	None. Some of this information is made available in national communications at present.	National communications, NAPAs	Non-Annex I Parties, LDCs
PI-MECH-05	Guidance for reporting on joint R&D needs	High feasibility High relevance	None	UNFCCC secretariat	
Finance					
PI-FIN-01	Total annual global investment and financial flows in climate change mitigation technologies	Medium feasibility High relevance	The second best indicator will be total investment and financial flows for each individual source of finance for which data are available.	UNFCCC secretariat	All Parties
PI-FIN-02	Total global investment and financial flows in climate change adaptation technologies	Medium feasibility High relevance	The second best indicator will be total investment and financial flows for each individual source of finance for which data are available.	UNFCCC secretariat	All Parties
PI-FIN-03	Total annual investment and financial flows in climate change technologies – financial mechanisms under the Convention	High feasibility High relevance		GEF, UNFCCC secretariat	All Parties
PI-FIN-04	Total annual investment and financial flows in	High feasibility		UNEP, UNFCCC	All Parties

Table 4 (continued)

Code (ID)	Performance indicator (as formulated in document FCCC/SB/2008/INF.6)	Feasibility (High, medium, low) Relevance to synthesized objective (High, medium, low)	Possible modification of the performance indicators (after testing using the methodological sheet)	Data collection	Parties' involvement
	climate change technologies – Kyoto Protocol flexibility mechanisms	Medium relevance		secretariat	
PI-FIN-05	Total annual investment and financial flows in climate change technologies – bilateral sources	Medium feasibility Medium relevance		OECD	All Parties
PI-FIN-06	Total annual investment and financial flows in climate change technologies – national sources	Medium feasibility Medium relevance		National communications	All Parties
PI-FIN-07	Total annual investment in climate change technologies – multilateral sources	Medium feasibility Medium relevance		World Bank, regional development banks, OECD	All Parties
PI-FIN-08	Total annual investment and financial flows in climate change technologies – private sources	Medium feasibility Medium relevance	Due to the lack of country-specific data on all investment in all climate change technologies, it may be necessary to use a second best performance indicator that tracks private investments in a range of climate change technologies. This approach would utilize the best available source of data for private investment in clean energy technologies as published	United Nations Conference on Trade and Development, OECD, UNEP	All Parties

Table 4 (continued)

Code (ID)	Performance indicator (as formulated in document FCCC/SB/2008/INF.6)	Feasibility (High, medium, low) Relevance to synthesized objective (High, medium, low)	Possible modification of the performance indicators (after testing using the methodological sheet)	Data collection	Parties' involvement
			annually by the UNEP Sustainale Energy Finance Initiative in the report entitled *Global trends in sustainable energy investment*.[b] As no equivalent data are available for adaptation technologies, it may only be possible to monitor private investment in adaptation technologies using the data from other indicators (PI-FIN-03 to PI-FIN-07) on private sector leveraging.		

Abbreviations: DTT = Development and transfer of technologies, ESTs = environmentally sound technologies, GEF = Global Environment Facility, IGOs = intergovernmental organizations, NAPA = national adaptation programme of action, NCSA = national capacity self assessment, NSDS = national sustainable development strategy, R&D = research and development, TNAs = technology needs assessments, TT:CLEAR = UNFCCC technology information clearing house, UN CSD = United Nations Commission on Sustainable Development, UNDP = United Nations Development Programme, UNEP = United Nations Environment Programme, WIPO = World Intellectual Property Organization.

[b] <http://sefi.unep.org/english/globaltrends.html#c2321>.

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