

GUIDE TO WATER SECTOR ROADMAP

1. The following guidelines support the Water Sector Roadmap - generic indicators to help with development of the CSPs and CSPUs. Some of the indicators below have associated qualitative benchmarks, and bold text can be used on the roadmap. Others are quantitative benchmarks. The roadmaps are meant to be applicable in all ADB's DMC, yet some indicators and benchmarks may be more appropriate than others for certain countries and tailoring the roadmap to local conditions may be useful.

2. These indicators provide the starting point for the roadmap. The key tasks, however, are identifying the critical outputs, issues and constraints, and milestone and investments to address the needs of the sector and to help promote sector reforms.

I. Outcome Indicators for National Policy Reforms

A. Effective National Water Policy(s).

3. An effective national water policy should: 1) specify institutional responsibilities taking into account different levels of governance including national, state, local, and basin (from WFA Policy); be comprehensiveness; and 3) be transparent to stakeholders. Policy-oriented indicators in this roadmap, such as this national policy indicator, have 3 considerations for effectiveness: 1) is the policy in place; 2) is the policy being effectively implemented; and 3) is the policy achieving its objectives. It is recognized that judging whether the policy is being effectively implemented is rather subjective.

Benchmarks:

- **No policy(s) exists**
- The policy(s) is **under discussion and consideration** with a process for formal adoption (please give a target date)
- The policy is **in place yet not implemented effectively** (please give date of adoption and discuss its limitations in the issues and constraints sections).
- The policy is in place and being **implemented effectively but not fully meeting needs** of the sector (please give date of adoption and discuss its limitations in the issues and constraints sections).
- The policy is in place and being **implemented effectively and meeting needs** of the sector.

B. Effective water sector apex body.

4. A water apex body or similar administrative mechanism is in place to guide sector reforms and to coordinate sub-sectoral water management (from WFA Policy).

Benchmarks:

- **No body in place** (please give a target date)

- The body is **under discussion and consideration** with a process for formal adoption (please give a target date)
- **Exists yet is ineffective** (please identify the apex agency or coordinating body and discuss limitations in the issues and constraints section)
- **Exists yet is partially effective** (please identify the apex agency or coordinating body and discuss limitations in the issues and constraints section)
- **Exists and is fully effective** (please identify the apex agency)

C. **Effective water action agenda**

5. The water action agenda is separate from the national law/policy and should reflect an ongoing process carried out by the DMC. The action agenda should include sector reforms along with any investment concerns.

Benchmarks:

- **No plan or action agenda** is in place
- The plan is **under discussion and consideration** with a process for formal adoption (please give a target date)
- Plan **exists but is ineffective** (please identify lead agency(s))
- Plan is being **partially implemented and partially achieving results** (please identify lead agency(s))
- Plan is being **fully implemented and fully achieving results** (please identify lead agency(s))

II. **Outcome Indicators for Water Resources Management**

A. **Total annual withdrawals as share of annual water resources (includes both ground and surface water)**

6. This information is available from World Resources Institute (<http://earthtrends.wri.org/>) and will also be posted on the water projects database currently under development through KMAps.

B. **Existing policy and capacity to collect and manage water data among agencies.**

7. Data collection and management should be sustainable with a funding mechanism and not only donor sourced. The system must be able support decision-making for effective water resources management. The data should include specific

types of monitoring such as hydrologic (precipitation, surface and ground water); water quality; abstraction information; water rights; etc.

Benchmarks:

- **No policy or capacity** in place
- The policy/plan is **under discussion and consideration** with a process for formal adoption (please give a target date)
- **Exists but is ineffective** (please list lead agency and discuss limitation in issues and constraints)
- **Exists and is partially effective** (please list lead agency and discuss limitation in issues and constraints)
- **Exists and is fully effective** (please list lead agency)

C. Water resources management and development is executed from a river basin perspective

8. This indicator addresses the planning approach for water resources management and development, not the existence of formal institutions such as river basin organizations. ADB's water policy explicitly calls for creation of river basin organizations, however, and their existence can help ensure a basin perspective and provide a benchmark. The qualitative benchmarks below should be used with the indicator.

9. In cases where a basin approach exists, the one of the two following quantitative benchmarks should be used if they are known: 1) the percentage of the country's land area; or 2) the number of basins in country that have a river basin approach for planning and development.

Benchmarks:

- No river basin organizations or **no river basin planning and development approach** exist
- River basin planning and development approach is **under discussion and consideration** with a process for adoption
- River basin organizations or river basin planning and development approach **exists but is not effective**. Please the use the associated quantitative indicators as well
- River basin organizations or a river basin approach is **partially functional or used effectively in limited areas** for water resources management and development. Please the use the associated quantitative indicators as well
- Fully functional river basin organizations exist in a large part of the country or a river basin approach is **fully integrated into water resources**

management and development – use % of total basins or percentage of area or country under basin planning

D. Devolution of and participation with IWRM

10. This is a subjective indicator and benchmarks may be difficult to assess. The indicator is in reference to integrated water resources management (IWRM) and development activities, and participation and devolution/subsidiarity are critical concerns of ADB's water policy. Reference should be to de facto control not de jure policies.

Benchmarks:

- **No stakeholder participation and no local authority** and central government agencies control all water resource management and development with minimal or no delegated authority, limited presence in the field, and little stakeholder input.
- **Limited stakeholder participation and some local authority granted** for water resources management or development. Some field presence (basins, provinces) for water resources management activities with or without stakeholder participation.
- **Common stakeholder participation and local authority** for water resources management or development is common occurrence in the country and management agencies have field presence.
- **High degree of stakeholder participation and local authority** for water resources management or development exists. Water resources management and development is very participatory with resources users playing an active role over governance and a strong field presence for management and development agencies.

E. Adversely affected water quality

11. If data exists, break down the information by lakes and rivers and list the percentage where quality is affected. In the Pakistan example, information was available, yet in many cases precise information may not be available. This indicator may be tailored to the data existing within the country. If quantitative information does not exist, use the indicators below to describe the country's situation.

Benchmarks:

- **No impacts**
- **Slight impacts**
- **Moderate impacts**
- **Severe impacts**

F. Water quality management in place

12. Since water pollution statutory provisions and regulations are often separate from national water policies and the executing or lead agencies are often different, water quality management has a separate indicator. The indicator should reflect that standards, regulations, executing agency(s), and enforcement are in place and effective for water pollution control.

Benchmarks:

- Standards, regulations, executing agency(s), and enforcement are **not in place**
- Standards, regulations, executing agency(s), and enforcement are **under discussion and consideration** with a process for formal adoption (please give a target date)
- Standards, regulations, executing agency(s), and enforcement **exist but are ineffective** (please list lead agency)
- The standards, regulations, executing agency(s), and enforcement are **partially effective** (please list lead agency)
- Standards, regulations, executing agency(s), and enforcement exist and **fully effective** (please list lead agency)

G. Adversely affected coastal zone

13. If it exists, use quantitative data with regard to the extent of the coastal zone by percentage of length that is adversely affected. This indicator may be tailored to other data existing within the country. If quantitative information does not exist, use the indicators below to describe the country's situation.

Benchmarks:

- **No** impacts
- **Slight** impacts
- **Moderate** impacts
- **Severe** impacts

H. Economic losses due to floods and droughts – average from 1990 - 2000 (US\$) - from the water projects database 1990 to 2000.

14. This information is available for the WHO Collaborating Centre for Research on the Epidemiology (<http://www.cred.be/emdat/into.html>). The information will also be available on the water projects database currently under development through RSDD. If better country specific data exists, please substitute.

I. Number of deaths due to floods and droughts - average from 1990 - 2000 - from the water projects database 1990 to 2000.

15. This information is available for the WHO Collaborating Centre for Research on the Epidemiology (<http://www.cred.be/emdat/into.html>). The information will also be available on the water projects database currently under development through RSDD. If better country specific data exists, please substitute.

III. Outcome Indicators for Service Delivery

A. Incidence of diarrhea in children under 5.

16. This information is available from UNICEF (<http://www.childinfo.org/index2.htm>). The information will also be available on the water projects database currently under development through RSDD. If better country specific data exists for health information, please substitute.

Targets

- Reduction by 50 per cent in the deaths due to diarrhea in children under the age of five years and 25 per cent reduction in the diarrhea incidence rate – From UNICEF World Summit for Children

B. Urban population with access to safe water supply.

17. Use UN or World Bank information. This will be available on the water projects database currently under development through RSDD.

Targets

- Target by 2015 – reduce by one half the current portion without access – from Millennium Development Goals.

C. Urban population with access to adequate sanitation.

18. Use UN or World Bank information. This will be available on the water projects database currently under development through RSDD.

Targets

- Target by 2015 – reduce by one half the current portion without access – from the 2nd World Development Summit.

D. Performance of urban water supply with regard to non-revenue water.

19. National averages should be obtained if possible, yet if this information is not available, major cities in the country can be used. ADB's Second Water Utilities Data Book (1997) has data for many DMC cities. Give exact information if it is available and if it is not, use the estimated ranges below.

Benchmarks:

- 0 – 10%
- 10% - 25%
- 25% - 40%
- 40% - 60%
- 60% - 100%

E. Percentage of urban effluent that has wastewater treatment.

20. This indicator includes large centralized systems as well as small decentralized/package systems if the data is known. The indicator assumes primary treatment, yet if higher level treatment is taking, please note this. Give exact information if it is available and if it is not, use the estimates below.

21. The indicator may not address industrial discharge, yet if industrial treatment exists, please note this.

Benchmarks:

- 0 – 10%
- 10% - 25%
- 25% - 50%
- 50% - 75%
- 75% - 100%

F. Cost recovery for urban water supply agencies (public or private)

22. This indicator refers to O&M cost, and does not include capital costs. If capital costs are included please note this and other specific information such as depreciation and asset management costs in a footnote on the roadmap. Give exact information if it is available, and if it is not use the estimates below.

Benchmarks

- 0 – 25%
- 25% - 50%
- 50% - 75%
- 75% - 90%
- 90% - 100%

G. Private sector participation (PSP) in urban water supply

23. The indicator has qualitative and quantitative benchmarks. The qualitative refers to type/degree of services provided through the PSP, and in some cases more than one of the qualitative indicators may apply – please list as many that apply.

24. In cases where PSP exists, use the quantitative benchmark of the percentage of the country's population with PSP. If this cannot be determine substitute number of cities served with PSP.

Benchmarks Qualitative:

- Private contracting for **technical/construction services**
- Private capital for **financing**
- **Management contracts** to operate existing water supply systems
- Contracts to develop new build operate and transfer (**BOT**) water supply system for new water infrastructure
- **Full divestiture** of water supply system to private operator

Benchmarks Quantitative:

- Give the number of cities or the estimated percentage if known or use the following ranges.
- 0 – 3%
- 3% - 8%
- 8% - 15%
- 15% - 25%
- 25% - 50%
- >50%

H. Economic regulatory policies and agency(s) with adequate capacity to regulate urban water supply agencies.

25. This indicator has both qualitative and quantitative benchmarks. The qualitative refers to the degree to which a regulatory policy is implemented. In cases where a regulatory framework exists; the quantitative benchmark of the percent of the population served by a regulated utility should be used. If this quantitative information is not available then other data can be substitute such as the total number or percentage of cities served by a regulated utility.

Benchmarks Qualitative:

- **No policy, agency, or capacity** in place
- The policy or agency is **under discussion and consideration** with a process for formal adoption (please give a target date)
- **Exists but is ineffective** (please list the regulatory agency and discuss limitations in issues and constraints.)
- **Exists and partially effective** (please list the regulatory agency and discuss limitations in issues and constraints.)
- **Exists and fully effective** (please list regulatory agency)

I. Rural population with access to safe water supply

26. Use UN or World Bank information. This will be available on the water projects database currently under development through RSDD.

Target:

- by 2015 – reduce by one half the current portion without access – from Millennium Development Goals.

J. Rural population with access to adequate sanitation

27. Use UN or World Bank information. This will be available on the water projects database currently under development through RSDD.

Targets:

- Target by 2015 – reduce by one half the current portion without access – from the 2nd World Development Summit.

K. Existence of rural water supply systems that are self-sustaining for O&M either through community participation or financial cost recovery

28. This indicator refers to rural water supply system that do not require government subsidy for their O&M, except for monitoring or testing.

Benchmarks:

- **No systems** exist that are sustainable with no or low outside government subsidy or support
- **Some systems exist** that are sustainable with no or low outside government subsidy or support
- **Over 10%** of the systems are sustainable with no or low outside government subsidy or support
- **Over 25%** of the systems are sustainable with no or low outside government subsidy or support
- **Over half** of the systems are sustainable with no or low outside government subsidy or support
- **Over 75%** of the systems are sustainable with no or low outside government subsidy or support

H. Irrigation efficiency for existing irrigation systems

29. Irrigation efficiency for this indicator is defined as the percent of water needed by the crop over the total amount delivered into the irrigation system or project – use national averages.

I. Average yield per ha of major crops

30. Yields of the major grains in the country should be used as the indicator. If data exist, yields should be used in conjunction with their water requirements in the country to derive a yield per unit volume of water.

J. Cost-recovery for irrigation system O&M

31. This indicator refers to OM costs and should only include money received from user fees, not from sideline enterprises or indirect subsidies to the irrigation department. It may be necessary or useful to break this indicator into different indicators if different types of irrigation systems are present (e.g. large national systems, small communal systems, small pump systems). If any cost-recovery exists for capital, please note this.

Benchmarks:

- 0 – 25%
- 25% - 50%
- 50% - 75%
- 75% - 90%
- 90% - 100%

K. User participation in the system and degree and decentralization of irrigation agencies

32. The degree of participation may vary and is subjective, yet the benchmarks below provide a rough gage for participation. If these criteria are not applicable, simply use the following: no participation, low participation, medium participation, or high participation.

Benchmarks:

- **No participation**
- **Existence** of water users associations (WUAs)
- WUAs engaged in basic **O&M activities** for the systems, but have no control for planning or directing operations
- WUAs control completely or share with agency in system planning and directing operations with WUA control over budget (WUAs directly receive fees or government subsidy), staffing, cropping, and other decisions – **governance functions**

- **WUAs contracting to non-irrigation agency staff** of irrigation system functions
- WUA manage all activities and have **ownership or complete asset management** over system infrastructure

Water Sector Roadmap

A. Sector Outcomes	Indicators				
	5 past	Current	5 years	10 years	15 years
National Water Reforms					
1. Effective national water policy					
2. Effective water sector apex body					
3. Effective water action agenda					
Water Resources Management					
4. Total annual withdrawals as share of annual water resources (includes both ground and surface 1991)					
5. Existing policy and capacity to collect and manage water data among agencies					
6. River basin perspective for management and development					
7. Devolution of integrated water resources management					
8. Water quality impacts					
9. Water quality management in place					
10. Economic losses from floods and droughts (annual average from 1990 to 2000)					
11. Loss of life from floods and droughts (annual average from 1990 to 2000)					
Water Service Delivery					
12. Incidence of children under 5 with diarrhea					
13. Urban population with access to safe water					
14. Urban population with access to adequate sanitation					
15. Performance of UWSS – non-revenue water					
16. Amount (%) of urban effluent that is treated					
17. Cost recovery for urban water supply					
18. Private sector participation in urban water supply					
19. Effective regulatory system for urban water supply					
20. Rural population with access to safe water					
21. Rural population with access to adequate sanitation					
22. Self-sustaining rural water supply systems					
23. Irrigation efficiency					
24. Average yield per ha or yield per volume of water For wheat and rice respectively					
25. Cropping intensity					
26. Cost-recovery for irrigation system O&M					

27. User participation in irrigation					
B. Sector Outputs					
C. Sector Issues and Constraints					
By Agency					
D. Actions, Milestones, Investments	By Issue	Schedule	ADB	Others/ External	Govt.

Note: RSAN will be able to assist RD staff in collecting some of the sector statistics (Sector Outcomes) from external sources. Once a water sector assessment has been undertaken, much of the descriptive information will also be available from the National Water Sector Profile (NWSP) format. The Pakistan NWSP is a good example of the wealth of information that can be collected through a water sector assessment. In DMCs where ADB has not yet undertaken a water sector assessment, the water sector road map could outline the steps to do so, and also draw on information collected by the government and other donors.