

TERMS OF REFERENCE FOR CONSULTANTS

A. International Consultants

1. Bond market specialist (4 person-months)

The specialist should have proven working experience in finance, good knowledge of East Asian bond markets, can handle a team of financial analysts, and should be knowledgeable in handling financial database and website development. The consultant should have Phd in economics or finance from a renowned university with international standing, at least 10 years of specific experience relevant to the assignment and internationally-renowned scholar with demonstrated background of publications in top financial or economic journals. The consultant will assist the team leader (the Asian Development Bank [ADB] technical assistance [TA] mission leader) in developing and maintaining AsianBondsOnline (ABO). Specific tasks include the following:

- (i) identify detailed information content for each of the broad areas of the website: market infrastructure, legal and regulatory framework, market activities (including bond issuing and trading), market data, and key indicators of market movements; as well as government policies and initiatives, as outlined in the project document;
- (ii) review and supervise daily information market analysis, policy research, and market commentary contents;
- (iii) review and identify the presentation of updated market information in the Market Watch pages of the website;
- (iv) identify sources of information for each of the Association of Southeast Asian Nations (ASEAN)+3 members and other ADB members as required, including talking to key participants in bond markets;
- (v) strengthen the status of the ABO project database as a reliable alternative to the data from each economy's database or the Bank for International Settlements (BIS) database;
- (vi) supervise web designers and programmers to design and program all pages of ABO, following basic requirements outlined in the project document and set out by ADB's Office of Information Systems and Technology (OIST);
- (vii) identify the best way to improve ABO to make it more interactive for policy makers, regulators, investors, market participants, and other stakeholders in the region;
- (viii) publicize the website, including presentations to targeted or potential users, to be facilitated by in-country seminars and market presentations;
- (ix) prepare quarterly progress reports and a final report on ABO, including its technical specifications and operational procedures;
- (x) prepare drafts of the quarterly *Asia Bond Monitor* under the supervision of and in consultation with ERCD staff; and
- (xi) attend *Asia Bond Monitor* launches and seminars within or outside the duty station, as requested.

1. Bond market economists (4 persons, 6 person-months total)

The bond market economists will conduct in-depth evaluation of bond market developments and financial sector reforms for preparing the *Asia Bond Monitor* and produce reports and papers on areas that may include regional integration issues, public expenditure financing, private sector financing, and their corresponding effects on bond markets. The

consultants should have Phd in economics or finance from a renowned university with international standing, at least 10 years of specific experience relevant to the assignment and internationally-renowned scholar that have in-depth knowledge in bond market and financial sector issues. With demonstrated background of publications in top financial or economic journals. Specific tasks include the following:

- (i) by using a comparative framework, determine how economies are coping with the challenge of carrying out bond market development and financial sector reform, and how priorities are determined for the implementation of further development of bond market and financial sector reforms; and
- (ii) analyze whether gaps in expertise and capacity building efforts exist and if they need to be filled to ensure the progress of bond market development and financial sector reforms.

2. Financial market specialists (2 persons, 3 person-months total)

The specialists will conduct in-depth evaluation of specific financial markets issues (e.g., liquidity, securitization). They should have Phd in economics or finance from a renowned university with international standing, at least 10 years of specific experience relevant to the assignment and internationally-renowned experts in financial market analysis. Specific tasks include the following:

- (i) prepare brief literature reviews and draft a manuscript on local currency bond markets;
- (ii) compile data on measures of liquidity—including bid–ask spread, turnover ratio, bond yield volatility, and resiliency;
- (iii) conduct a comparative study on bond market liquidity in developing Asia and other selected emerging and developed markets; and
- (iv) discuss the importance of how the development of a reliable and liquid government benchmark yield curve can play a critical role in the development of liquid local currency bond markets.

3. Economics editor (6 person-months)

The editor will review and edit the contents of ABO and the *Asia Bond Monitor* to ensure coherence and readability, sound economic arguments, and the highest publication standards. The consultant should have at least 10 years of relevant experience in editing economic reports and publications. Specific tasks include the following:

- (i) examine economic arguments to assess if they are logical and based on accepted economic theory and principles;
- (ii) rewrite, add, or delete information, and help revise pages or sections, if necessary, to tighten economic arguments, fill in gaps in the discussions, and ensure the smooth flow of ideas;
- (iii) examine the tables, figures, and charts to ensure data consistency within pages and documents; and suggest deletions and additions to ensure that they are useful;
- (iv) edit ABO pages for publication, the *Asia Bond Monitor*, and documents related to the ABO project; and
- (v) ensure that documents adhere to the ADB Handbook of Style and Usage and conform to high publication standards.

4. Resource Persons (8 persons, 2 person-months total)

Resource persons, with demonstrated expertise in the field of finance and economics and with backgrounds as policy makers and/or subject experts, will be engaged to review publications and

working papers; participate in related seminars, workshops, and conferences; or facilitate the training courses.

B. National Consultants

1. Project coordinator and researcher (24 person-months)

The project coordinator and researcher will perform management and coordination work to support project outputs and conduct research work with the financial market analysts. The consultant should have a master's degree in finance or economics and should be knowledgeable in handling financial database and in accessing financial data from various databases such as Bloomberg and CEIC, have demonstrated professional experience in coordination and technical research work, and have a minimum 7 years specific work experience. Specific tasks include the following:

- (i) support in the management of the daily operations of ABO, including approving the daily upload of website content produced by ABO team members;
- (ii) help implement the ABO work plan by ensuring that performance plans of ABO team members are carried out;
- (iii) oversee enhancements (both front-end and back-end interfaces) of sections of ABO, including the Market Watch, Bond Indicators, Credit Risk Monitor, and Repo Market sections;
- (iv) help supervise technical work done by ABO team members;
- (v) support the team leader in preparing management reports related to ABO;
- (vi) liaise with ADB departments and other stakeholders on ABO-related matters;
- (vii) provide data support, such as information on sovereign and corporate bonds issued in ASEAN+3 members and other ADB members, including market activities, legal and regulatory frameworks and market infrastructure, and government policies and initiatives;
- (viii) regularly review the major sections of ABO, screen and consolidate information on the internet and from other sources, update the website, and conduct data integrity checks for consistency with source databases;
- (ix) prepare market analysis and write-ups for the regional and market summary sections of the *Asia Bond Monitor*;
- (x) prepare course materials and conduct capacity building workshops; and
- (xi) attend and/or organize *Asia Bond Monitor* launches and seminars within or outside the duty station, as requested.

2. Financial market analysts (6 persons, 144 person-months total)

The analysts will help the project coordinator and researcher develop and operate ABO. The analysts should be familiar with capital markets and policy issues in the participating economies and have extensive experience in financial data analysis, strong communication skills, and proficiency in standard computer applications software. The analysts should have a master degree in finance or economics with minimum 7 years specific experience relevant to the assignment. Each analyst will have economy-specific assignments, which include the 10 ASEAN members plus the People's Republic of China (including Hong Kong, China); Japan; and the Republic of Korea. They may also collect data on other markets, outside ASEAN+3, for comparison purposes or for analysis of their expected impact on regional markets. Specific tasks include the following:

- (i) compile information on sovereign and corporate bonds issued in ASEAN+3 members and other ADB members, including market activities, legal and regulatory frameworks and market infrastructure, and government policies and initiatives;
- (ii) assist in the website's daily operations including the collection, monitoring, screening and consolidation of information from various data sources;
- (iii) maintain various sections of the website, including the Market Watch, Bond Indicators, the Credit Risk Monitor, and Islamic Finance sections, as well as the market structure section for assigned markets;
- (iv) liaise with market sources and participants such as Ministry of Finance, stock exchanges, central banks, and bond pricing agencies of assigned markets to verify bond market data for consistency.
- (v) support redevelopment of the website's functions and design
- (vi) prepare market analysis and write-ups for the regional and market summary sections of the Asia Bond Monitor;
- (vii) conduct liquidity survey;
- (viii) prepare course materials and conduct capacity building workshops;
- (ix) provide research support to staff; and
- (x) attend and/or organize *Asia Bond Monitor* launches and seminars within or outside the duty station, as requested.

3. Website developer and administrator (24 person-months)

The website developer and administrator will work closely with other IT consultants, project officers, and project coordinator to enhance the existing ABO website and assist in maintaining the website. The consultant should have a minimum Bachelor degree in information and technology with minimum 6 years specific experience, and should be knowledgeable in developing and managing financial database and website. Specific tasks include the following:

- (i) maintain and redesign the existing database schema of the website and conduct regular ABO website enhancements and improvements;
- (ii) conduct user survey needed for website improvements of lay-out and content;
- (iii) create automated systems and enhance existing ones for both front-end and back-end interfaces;
- (iv) redesign systems to support a platform for structured bond pricing data from national bond pricing agencies and additional data from other sources;
- (v) develop mobile-friendly applications for ABO website users;
- (vi) layout the ABO newsletter on a weekly basis, administer the email notification system and track the status of every broadcast;
- (vii) maintain system integrity against online threats and system failures by improving security and stability, and conducting back-ups of ABO data;
- (viii) maintain an inventory of software and hardware assets of the ABO team, and recommend upgrades sufficient for ABO;
- (ix) maintain ABO servers for its proper operation and coordinate with OIST regarding technical aspects for proper functioning of the ABO website
- (x) prepare and update the technical and functional documentation or templates of the ABO website, standards, and procedures; and
- (xi) devise, integrate, and manage a web analytics programs to monitor the performance of the website in terms of visitor usage and access.

4. Website developer (8 person-months total)

The website developer will redesign the existing website for improvements in lay-out and content, to conform to mobile-friendly applications, and to accommodate expanded data coverage. The website developer should have a minimum Bachelor degree in information and technology with minimum 6 years specific experience, and should be knowledgeable in developing financial database and website. Specific tasks include:

- (i) maintain and redesign the existing database schema of the website and conduct regular ABO website enhancements and improvements;
- (ii) conduct user survey needed for website improvements of lay-out and content;
- (iii) create automated systems and enhance existing ones for both front-end and back-end interfaces;
- (iv) redesign systems to support a platform for structured bond pricing data from national bond pricing agencies and additional data from other sources;
- (v) develop mobile-friendly applications for website users;
- (vi) assist ADB staff and the ABO team leader in designing database and/or data warehouse;
- (vii) maintain the ABO contact list and feedback and information email accounts;
- (viii) design, develop, and operate email survey and newsletter transmission and reception systems;
- (ix) create and continually update functional and technical documentation pertaining to the site and data architecture and processes;
- (x) diagnose and repair errors encountered in the website and back-end processes; and
- (xi) perform other tasks not mentioned above related to the website as assigned by the ABO team leader.

5. Graphic designer (6 person-months)

The designer is responsible for creating and designing web pages as required by the project with a Bachelor degree in information and technology and with minimum 6 years specific experience. Web page design includes information design, layout, color, typography, and HTML programming. The designer must have expert knowledge of digital design software and languages: Adobe Photoshop and PageMaker, CorelDRAW, Adobe Flash, HTML, and JavaScript programming. Specific tasks include the following:

- (i) design and render superior quality web pages; oversee and preserve the integrity of the website's design;
- (ii) design new web pages, icons, and thumbnails; suggest modifications to the design of existing web pages;
- (iii) provide advice and opinions on the information design, architecture, interactivity, and usability of the website;
- (iv) create and design project materials such as brochures, leaflets, banners, and book covers, conforming with the One ADB, One Look standards;
- (v) work with the website developer and administrator in enhancing the features of the ABO website; and
- (vi) carry out other tasks related to graphic design as assigned by ADB staff.

6. Typesetter (9 person-months)

The typesetter will typeset all study-related materials to be published and should have a minimum 7 years relevant experience. The typesetter will ensure that the text, tables, and figures are

properly included and publications are in an orderly and clear format. The typesetter will work in coordination with the economics editor, ADB staff, and the Department of External Relations.

7. Training coordinator (6 person-months)

The coordinator should have masters in economic of finance, with demonstrated expertise in in coordinating a senior-level training programs/workshops. The coordinator should have a good knowledge of finance and strong analytical and communication skills. Specific tasks include the following:

- (i) support training events, particularly logistical arrangements for all the training courses under the TA;
- (ii) provide coordinating support to external agencies;
- (iii) assist in preparing training materials and publishing case studies;
- (iv) consolidate feedback from training participants through the evaluation forms submitted for analysis by the team leader;
- (v) provide administrative support to ADB staff and international consultants; and
- (vi) organize training activities within or outside the duty station, as requested.