EARTH ECONOMICS

Natural Resources Accounting:

A Path Forward for the

Governmental Accounting Standards Board

February 2017

EARTH ECONOMICS

February 22, 2017

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Dear Sirs,

As you know, Earth Economics has been researching ways for GASB to be more involved in setting standards and providing guidance for natural resources because we believe it will improve governmental financial reporting. It has been our pleasure to help inform the GASB's thinking regarding these topics over the past few years.

As you may recall, in March 2014 we provided an introductory presentation to the GASB and the GASAC on the topic of natural resources, with a focus on emerging opportunities for emissions trading accounting standards. In March 2016, we conducted a professional development session for GASB, FASB, GASAC, and FAF members and staff on the topic of *Accounting for Natural Resources: Emerging Issues and Perspectives*. We appreciate the productive discussions and thoughtful feedback that resulted from these interactions, and the leadership shown by GASB in being willing to contemplate these issues.

As a continuance of these discussions, we have prepared the enclosed report for your review. This report discusses how further recognizing certain natural resource assets and liabilities might support the objectives of financial reporting and help state and local governments make economically efficient, environmentally appropriate decisions without undue hindrance. We hope to discuss these proposals with you in the near future.

We have prepared this report because users of financial reports rely on accurate, meaningful financial reporting to make informed decisions, and because issues related to accounting for natural resources have become more important and timely given emerging markets and the increasing scarcity and reliance on critical natural resources. To this end, we suggest four steps that the GASB could adopt. These steps are presented in order of their expected level of effort (easiest to hardest), but the GASB could approach them in any sequence. The four steps are each further detailed in a chapter of this report and include:

- **Step 1. Using existing standards to better address natural resources.** Discussions with preparers and users suggest that some existing accounting standards can address certain natural resource transactions, but may require further guidance from the GASB. GASB Standard 62 on Regulated Operations (paragraphs 476-500; previously known as ASC 980 and SFAS No. 71) is one example described in this report.
- **Step 2. Providing newly established natural resources markets with clear guidance.** The number and variety of natural resource markets in the U.S. has grown exponentially over the past several decades. More specific standards related to these natural resource markets from the GASB (and

potentially also the FASB) would benefit both users and preparers. **GASB, for example, has added the topic of *Emissions Trading (Carbon Credits)* to its list of Potential Projects, and the topic will be considered at the upcoming GASAC meeting in March.**

- **Step 3. Considering natural resources in all standards-setting processes.** All government agencies operate in the context of the natural environment and interact with natural resources in a number of ways, both as assets and liabilities. In this sense, all accounting standards can have implications for natural resources. Natural resources could be a consideration in the development of all future accounting standards and guidance issued by the GASB. For example, the GASB could require explicit consideration of natural resources in internal procedural documents such as the GASB's Research and Technical Activities (RTA) Manual, or the guiding principles in GASB's Rules of Procedure.
- **Step 4. Requiring natural resources information to be included in financial reports, particularly financial statements.** The GASB could require that natural resource information be included in financial reports, such as footnote disclosure, required supplementary information, or financial statements. This step could include adding the general topic of natural resources to the Technical Agenda as a Pre-Agenda Research Activity. Alternatively, the Financial Reporting Model Reexamination project or other ongoing projects may also provide opportunities to incorporate these concepts. Consideration of natural resources in financial reporting appears to comply with, and may even advance, existing GASB Concepts Statements.

The section following these four steps addresses some of the measurement issues associated with natural resources, and provides initial suggestions on established approaches that could be used. Finally, this report briefly describes the types of potential costs and benefits associated with each of the four steps that might be incurred by GASB, preparers, and users.

With greater scarcity of the natural resources that governments depend on, and a large increase in the number of transactions associated with natural resources over the previous decades, the issue of natural resources presents an opportunity for the GASB to take leadership in this field, while supporting the objectives of financial reporting. Earth Economics and our partners stand ready to support you in this important work.

Sincerely,

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Cc: Members, Governmental Accounting Standards Board
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Why this is Important

One hundred years ago, in the early 1900s, the United States was a nation of dirt tracks. We did not have the level of infrastructure or economic goods and services we enjoy today. Natural resources were plentiful, but people needed more access to man-made goods and services like transportation, public education, clean water, and electricity to improve their quality of life. In response to this need, financing mechanisms were developed to construct roads, schools, levees, pipes, and other critical infrastructure. Necessary services were subsequently delivered efficiently – and at the scale required. Progress in accounting further helped to support these financing mechanisms and secure economic progress for our nation.

Today, we live in a much different context. For the most part, we are no longer short of man-made infrastructure (even though there is great need to maintain what we have), but natural resources have become scarcer. At the same time, government agencies and companies are increasingly recognizing the economic and financial benefits of a healthy natural environment and considering these benefits in financial and economic policies. In addition, natural resources are becoming a material issue from the perspective of investors and credit ratings agencies.

State and local governments interact with natural resources in a number of ways, both as assets and liabilities. For the purposes of this report, the term "natural resources" refers to materials or substances such as minerals, forests, water, and fertile land that occur in nature and provide economic benefits.

Government interactions with natural resources include agency use of the environment to provide present service capacity (e.g. forested watersheds for drinking water, green stormwater infrastructure), or agency actions that reduce impacts on the environment (e.g. treatment of wetlands for wastewater, air quality programs, toilet rebate programs). Natural resources such as water and land are often among governments' most important assets, providing the basis for their annual revenue.

However, accounting standards do not yet provide guidance for most natural resources.

Contradictions can result from this lack of guidance. For example, the FASB has issued accounting rules that help companies manage major oil fields shared by different owners/producers. Each company discloses the value of their portion of the reserves in financial reports. This accounting clarity, even when physical reserves are difficult to estimate, is an important element for enabling lending and investment at scale.

Aquifers – underground water reserves – are treated differently. Across the U.S., aquifers such as the Edwards, Trinity, Gulf Coast, San Joaquin, Ogallala, New York Sandstone, and Pennsylvanian Aquifers are shared resources that are not reflected on any balance sheets. No accounting requirement or guidance exists. Accounting is not the cause of aquifer depletion, but the absence of an accounting approach makes difficult problems more unresolvable – or even invisible. In addition, the lack of accounting guidance can have indirect consequences, such as limiting or preventing large scale financing of natural resource assets, even when those assets provide service capacity more cost-

effectively than their "grey" infrastructure alternatives (e.g. protecting the Catskills for clean water supply vs. building a new filtration plant).

Finally, with the exponential growth of emissions trading systems and environmental markets around the U.S. in the past two decades, real transactions (accounting events) are occurring on the scale of billions of dollars, and users and preparers have stated that more specific accounting guidance would be useful.

Accurate accounting continues to be essential for sound financial decision-making by public agencies, companies, and investors. Accounting standards help governments or companies decide where to invest capital and provide the basis for financial reporting, asset management, master planning, bond disclosure, and understanding an organization's financial and economic condition. As the FAF states on its website:

- *High-quality financial reporting standards are essential to the efficient functioning of our capital markets.*
- *Better financial information brings greater transparency to the economics of an organization.*
- *Greater transparency results in better capital allocation decisions—investors and lenders make wiser decisions about where to put their money.*

We understand that many preparers object to adding more standards on topics that they do not feel are useful. At the same time, many water agencies and other state and local agencies have noted that not valuing assets like water or watersheds results in an understatement of their asset values, is incomplete disclosure, and may lead to a lower credit rating than is appropriate. In this case, well-crafted guidance should help these agencies.

This report summarizes a number of opportunities for GASB (and in some cases, FASB) to get ahead of these emerging issues. Some issues can be resolved quickly and with little additional guidance, while others will require more time and guidance, but can ultimately be solved.

In the following chapters, we suggest four steps that the GASB could adopt. These steps are presented in order of their expected level of effort (easiest to hardest), but the GASB could approach them in any sequence.

Step 1. Using existing standards to better address natural resources

There are a number of natural resource accounting issues that can be managed using current GASB guidance and standards. However, in some cases this would be facilitated with more explicit guidance from the GASB. This is clearly the quickest way for GASB to provide assistance to governments on natural resources accounting.

GASB Statement No. 62: Regulated Operations

For example, one issue that has been raised by a number of agencies is how to access capital when trying to fund water efficiency and conservation programs that often rely on "distributed" infrastructure rather than traditional capital assets. It appears that GASB guidance on how to account for Regulated Operations (GASB Statement No. 62, paragraphs 476-500; previously known as ASC 980 and SFAS No. 71) can meet many of these needs.

GASBS 62 allows qualified entities that set their own rates to use this standard as long as there is reasonable assurance that the costs of a certain activity can be recovered through rates. In these circumstances, the standard stipulates "a regulated business-type activity should capitalize all or part of an incurred cost that otherwise would be charged to expenses." Under this standard the cost of water efficiency rebates, water conservation devices and similar activities would become a regulatory asset on the balance sheet. It follows that these entities could borrow funds to pay for these programs if all other debt financing criteria are met.[1]

The power industry has used GASBS 62 to make a variety of green and energy efficiency investments since the 1980s, and capitalize the related charges. In recent years, some large and sophisticated water and wastewater utilities have made use of the regulated operations standard for environmental programs and non-traditional assets,

However, many agencies, especially smaller, less sophisticated ones, need more explicit guidance. GASB could provide that guidance through their next Implementation Guide.

The ability to record assets under GASB No. 62 will be of value for many agencies. Additional guidance on the definition of an asset, level of control required, etc. will be needed to meet the needs of others and we will continue to provide input to GASB on these and other topics.

Recommendation

GASB should include official guidance on the use of Regulated Operations in their next Implementation Guide. As other examples of using current guidance to apply to natural resource issues become known, GASB should be willing to provide more explicit assurance that standards that were written without natural resources in mind can still be used for these purposes.

[1] More information on this topic can be found at http://www.gfoa.org/GRF-articles/11126

Step 2. Providing newly established natural resources markets with clear guidance

A variety of markets for natural resources are currently operating across the U.S. Many of these markets involve activities that reduce pollutants for both air and water resources. Other markets fund restoration or enhancement of specific ecosystems, and promote the protection of the country's natural resources. Markets in the U.S. include carbon cap-and-trade, carbon offsets, mitigation banking, in-lieu fee programs, water quality trading, renewable energy certificates, and air quality trading. Many/all of these markets involve government agencies as regulators or participants and therefore require GASB's attention.

To date, a number of standard-setting bodies, including FASB, GASB, IASB, and IPSASB, have considered issuing accounting guidance for natural resource markets (typically focusing on carbon markets). However, the accounting issues associated with these markets are often difficult to resolve, and authoritative standards have yet to be developed. In the meantime, the number and variety of natural resource markets has grown exponentially over the previous several decades, driven by both demand and regulation. Figure 1 shows the growth of environmental markets in the U.S. since 1985.

Figure 1. Growth in Ecosystem Markets in the United States

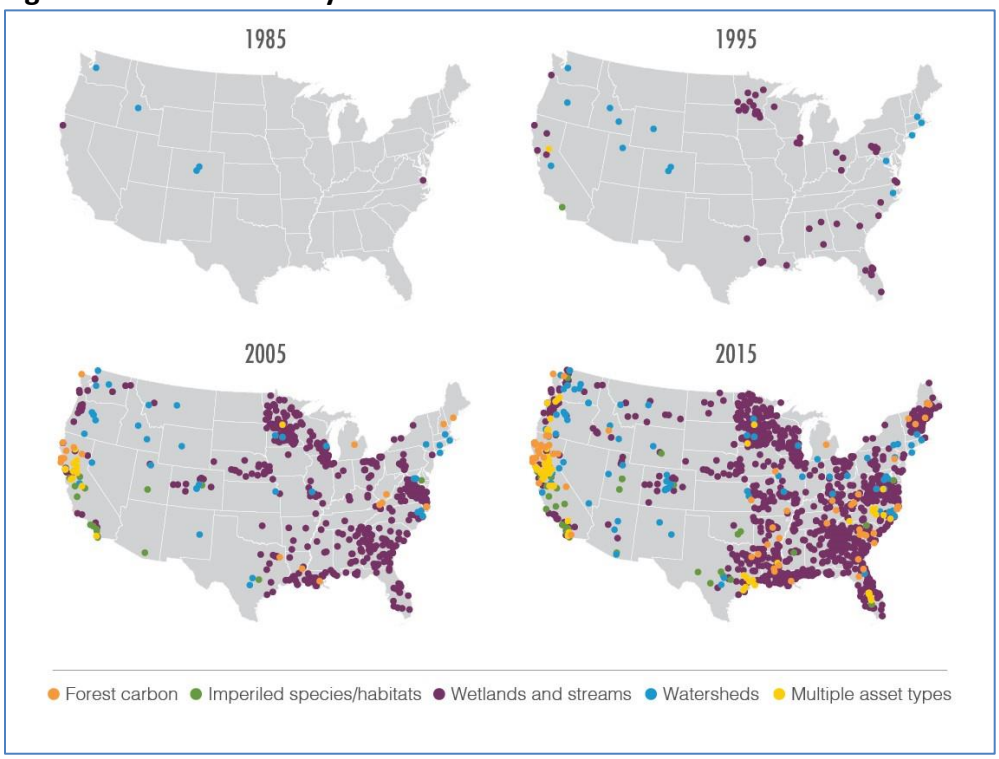

Table 1 lists examples of environmental markets in the U.S. and their geographic scope. More detail on a selection of environmental market types is provided further below.

Table 1. Examples of Environmental Markets in the U.S.

Market Name	Market Type	Geographic Scope
California Air Resources Board (CARB) Cap-and-Trade Program	Carbon	California, Nationwide
Regional Greenhouse Gas Initiative (RGGI) Cap-and-Trade Program	Carbon	Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont
Connecticut Nitrogen Credit Exchange Program	Water Quality	Connecticut
Virginia Chesapeake Bay Watershed Nutrient Credit Exchange Program	Water Quality	Maryland, Pennsylvania, Delaware, New York, West Virginia, Virginia, District of Columbia
Pennsylvania Nutrient Trading Program	Water Quality	Pennsylvania
Army Corps Wetland Mitigation Banking	Mitigation Banking	Nationwide (1,449 banks)
Conservation Banking	Mitigation Banking	Nationwide (120 banks)
Renewable Energy Certificates	Environmental	Nationwide

- **Cap-and-trade markets** are established to control greenhouse gas emissions through limits on emissions and trading of emissions allowances. Overall emissions limits are typically set and subsequently lowered over time to achieve long-term reduction goals. The trading element of cap-and-trade programs allows entities to earn revenue by selling unused allowances at auctions while simultaneously giving other entities the flexibility of purchasing more allowances to cover higher levels of emissions. Carbon offset credits can also be created through projects that reduce emissions and can be sold to other participants. Cap-and-trade markets in the U.S. include:
    - **California's cap-and-trade program** is the second largest carbon market in the world, after the EU's emissions trading system.[2] Total proceeds of approximately $4 billion have been deposited into the California Greenhouse Gas Reduction Fund (GGRF) since the market was established in 2012.[3]
    - **The Regional Green House Gas Initiative (RGGI)** was the first mandatory cap-and-trade program implemented in the U.S. Participating states include Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, Vermont, and (until 2012) New Jersey. The first auction of emissions allowances was held in 2008 and total cumulative proceeds are $2.6 billion.[4] More than half of the proceeds have been

[2] http://www.c2es.org/us-states-regions/key-legislation/california-cap-trade#Details
[3] https://www.arb.ca.gov/cc/capandtrade/auction/feb-2016/ca_proceeds_report.pdf
[4] https://www.rggi.org/market/co2_auctions/results

reinvested into energy efficiency, clean and renewable energy, greenhouse gas abatement, and direct bill assistance programs.

- **Water quality trading** is a market-based instrument that allows entities with high pollution abatement costs to purchase pollution discharge reductions from sources with low abatement costs. Water quality trading markets have been created in a number of states and regions for trading reductions of nitrogen, phosphorous, temperature, selenium, and sediment.

- **A mitigation bank** is a designated aquatic area, wetland stream, or other resource area that has been restored, enhanced, established, or preserved for the purpose of offsetting permitted unavoidable impacts. Wetland mitigation is a $3 billion-per-year industry comprised of 2,940 mitigation banks and covering 960,000 acres of wetlands, streams, and habitats in the U.S.[5,6]

- **Renewable energy certificates** are intangible, tradable credits that represent the environmental attributes of renewable power. They are available for purchase in retail, wholesale, and commercial markets.

Accounting issues related to environmental markets

The transactions associated with natural resource-related markets total billions of dollars each year, yet agencies are often using divergent approaches to account for these transactions, resulting in accounting inconsistencies across comparable entities. Discussions with preparers and users of financial reports, along with anecdotal evidence, suggest a need for more specific standards related to these natural resource markets.

For example, to account for carbon allowances obtained and sold through the California cap-and-trade program, the Sacramento Municipal Utility District (SMUD) refers to guidance provided by the Federal Energy Regulatory Commission (FERC), as well as GASB Standard 62 *(Regulated Operations),* to record the revenues and costs of participating in the trading programs and transferring those benefits or costs to the end-consumer through rate adjustments.[7] The United States Department of Agriculture also found it necessary to issue a memo with accounting guidance for Renewable Energy Credits in 2009.[8]

Accounting standards-setting bodies such as GASB, FASB and IASB have considered and discussed accounting guidance for environmental markets in the past. For example, GASB noted the following questions in its description of the potential project *Emissions Trading (Carbon Credits)*: [9]

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[5] http://www.ecosystemmarketplace.com/articles/banking-on-change-rethinking-wetland-br-mitigation-in-the-state-of-new-york/

[6] https://ribits.usace.army.mil/

[7] Personal communication with David Ferguson, Senior Accountant, Sacramento Municipal Utility District.

[8] https://www.rd.usda.gov/files/RenewableCredits09.pdf

[9] http://www.gasb.org/cs/ContentServer?c=Document_C&pagename=GASB%2FDocument_C%2FGASBDocumentPage&cid=1176168687417

- When should carbon credits and other emissions trading credits be recognized by governments that administer these programs and governments that hold credits as a result of exchange and nonexchange transactions involving these programs?

- How should these credits be measured by governments that administer these programs or hold credits in exchange and nonexchange transactions as a result of these programs? Should credits held be measured at initial value or a remeasured value?

- What information should be disclosed regarding the recognition and measurement of credits related to these programs?

While most of these issues have been discussed in the context of markets related to carbon credits/emissions trading, it's reasonable to assume that similar issues will arise with other environmental markets due to their similar characteristics (infrastructure, rules, crediting systems etc.). For this reason, it is likely that broad accounting guidance could be developed for a range of new and established environmental markets.

Standards-setting efforts to date

Perhaps due to their size, emissions trading systems have been the most commonly discussed environmental markets in the context of accounting standards. Progress to date includes:

- The FASB's Emerging Issues Task Force (EITF) was the first body to address accounting for emission trading schemes (ETS) within the United States, and issued EITF Issue 03-14 *Accounting for Emissions Allowances*. This standard was later withdrawn in 2003.[10]

- In 2004, the International Financial Reporting Integrations Committee (IFRIC), under the International Financial Reporting Standards Foundation, issued IFRIC 3 *Emission Rights*. This standard was withdrawn in 2005.[11]

- In 2008, the IASB and FASB began joint meetings to discuss cap-and-trade schemes. The FASB and IASB agreed to defer joint work on the project in 2010. The FASB removed this project from its agenda in 2014.[12] The IASB reactivated the project in 2012 and the scope was adjusted in 2015.[13]

- For the past several years, the IPSASB and IASB have been collaborating on a project related to pollutant pricing mechanisms (formerly emissions trading schemes). The IPSASB has paused its work on this project pending IASB developments.[14]

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[10] http://www.fasb.org/jsp/FASB/FASBContent_C/ProjectUpdatePage&cid=900000011097

[11] http://www.fasb.org/jsp/FASB/FASBContent_C/ProjectUpdatePage&cid=900000011097

[12] http://www.fasb.org/jsp/FASB/FASBContent_C/ProjectUpdatePage&cid=900000011097

[13] http://www.iasplus.com/en/projects/research/short-term/emissions-trading

[14] http://cdn.ey.com/echannel/gl/en/industries/government---public-sector/ipsas-time-to-update-your-accounting-system/EY-ipsas-outlook-september-2015.pdf

- In 2014, the GASB added the topic of *Emissions Trading (Carbon Credits)* to its list of Potential Projects. At this time, the topic has not been added to the GASB's Technical Agenda or Pre-Agenda Research.[15]

Recommendation

Environmental markets in the U.S. have reached a level of maturity and scale at which the key issues are known and accounting guidance is needed. GASB and FASB can build upon previous discussions and guidance related to environmental markets to date, which have been focused on carbon for the most part, and potentially solve issues related to a broader set of environmental markets at the same time. GASB for example has added the topic of Emissions Trading (Carbon Credits) to its list of Potential Projects, and this will be considered at the upcoming GASAC meeting in March. Due to the public-private nature of many of these markets, it may be appropriate to initiate a joint project between GASB and FASB.

[15] http://www.gasb.org/cs/ContentServer?c=Document_C&pagename=GASB%2FDocument_C%2FGASBDocumentPage&cid=1176168687417

Step 3. Considering natural resources in all standards-setting processes

In the future, it may be quite appropriate for the GASB to issue a single standard that consolidates major guidance on accounting and reporting for natural resources in one place (see next section). In the meantime, as the GASB develops new standards or revisits existing standards, it could make natural resources a standard consideration in internal procedural documents such as the GASB's Research and Technical Activities (RTA) Manual, or the guiding principles in GASB's Rules of Procedure.

Examples of Current GASB Guidance that relates to Natural Resources

Some existing GASB statements already directly or indirectly address natural resources, and some statements that do not explicitly mention natural resources have been applied to such areas by entities in practice.

Statement 44, *Economic Condition Reporting: The Statistical Section*, addresses accounting for natural resources in the statistical section of the CAFR. The statement provides guidance for entities to include certain types of natural resource measures, sometimes indirectly. For example, in the "operating information" section, there is guidance on how to describe certain capital assets related to natural resources. In the "direct rate" section, water charges are suggested as one way to present the revenue capacity of an agency. The "operating information" section also contains guidance for governments to include useful information for constituents about the nonfinancial resources employed to provide services. The implementation guide for Statement 44 also includes natural resources as a recurring line item throughout the statistical section. Specifically in the operating information section, it suggests using measures such as size of watershed by square miles drained, water storage capacity, and miles of water mains in the schedule of operating and capital indicators.

Statement 51, *Accounting and Financial Reporting for Intangible Assets,* defines intangible assets by the following characteristics: 1) having a lack of physical substance, 2) being nonfinancial in nature, and 3) having an initial useful life extending beyond a single reporting period. These criteria easily apply to the allowances and credits related to natural resources being traded in existing markets. In addition, the statement lists assets relating to natural resources including water rights, timber rights, and mineral rights as examples of intangible assets.

Statement 49, *Accounting and Financial Reporting for Pollution Remediation Obligations*, discusses the differentiation between capitalizing and accruing pollution remediation outlays. The essence of pollution remediation is automatically associated with natural resources, but the standard comments further on natural resource considerations. Specifically, it outlines that outlays related to natural resource damage are included in total pollution remediation outlays if incurred as part of a pollution remediation effort.

Statement 18, *Accounting for Municipal Solid Waste Landfill Closure and Postclosure Care Costs*, addresses the various costs associated with landfills, including costs related to natural resources. The standard gives examples such as groundwater monitoring, methane gas monitoring, and erosion control costs in an illustrative calculation of the total closure and postclosure care costs. These items

demonstrate how accounting for activities related to maintaining and protecting natural resources is considered when accounting for man-made, capital projects like landfills.

Statement 42, *Accounting and Financial Reporting for Impairment of Capital Assets and for Insurance Recoveries*, considers environmental factors for evaluating impairment of capital assets. According to the statement, one indicator of impairment can be "other changes in environmental factors, such as new water quality standards." The statement also gives examples of capital assets considered, including examples of subsidized capital assets like water and sewer systems, and gives illustrations for evaluating the impairment of a water treatment plant.

Statement 52, *Land and Other Real Estate Held as Investments by Endowments*, addresses the measurement of land at fair value. Although the statement does not directly discuss other natural resources, its premise for re-measurement of land at fair value makes it conceivable that other types of assets, specifically natural resource related assets that have not been previously measured as fair value could be valued using that approach in the future.

Statement 62, *Codification of Accounting and Financial Reporting Guidance Contained in Pre-November 30, 1989 FASB and AICPA Pronouncements*, (in addition to the "regulated assets" discussion earlier in this report) addresses natural resources in relation to current assets and current liabilities. The statement defines current assets as excluding land and other natural resources, and defines current liabilities as including the current portion of liabilities relating to depletion of natural resources. The statement also indirectly discusses natural resources associated with capital assets when sold by identifying developmental improvements, for example water supply, as one of the criteria for percentage-of-completion method for recognition of a gain on sale.

Recommendation

Natural resources could be considered as simply another variant that can often use the same guidance that would be appropriate for all other purposes. However, it may be appropriate to explicitly consider natural resources when setting or modifying all standards. To ensure this occurs regularly, GASB could require explicit consideration of natural resources through mechanisms used in the standards-setting process, such as the GASB's Research and Technical Activities (RTA) Manual, the guiding principles in GASB's Rules of Procedure, or other internal procedural documents.

Step 4. Requiring natural resources information to be included in financial reports, particularly financial statements

The Financial Accounting Foundation in its Overview of Accounting Standards states:

> Companies, not-for-profits, governments, and other organizations use accounting standards as the foundation upon which to provide users of financial statements with the information they need to make decisions about how well an organization or government is managing its resources.
>
> That information must be clear, concise, comparable, relevant and reliable.
>
> High-quality financial reporting standards are essential to the efficient functioning of our capital markets. High quality standards lead to better financial information about an organization. Better financial information brings greater transparency to the economics of an organization.

It is likely that guidance on accounting for natural resources will help to support these objectives and functions of accounting. In addition, while there may be measurement and others issues to overcome for natural resource guidance (see the next chapter), consideration of natural resources in financial reporting appears to comply with, and may even advance, existing GASB Concepts Statements.

For example, GASB Concepts Statement No.1, states:

> The Board believes that financial reporting plays a major role in fulfilling government's duty to be publicly accountable in a democratic society. Public accountability is based on the belief that the taxpayer has a right to know, a right to receive openly declared facts that may lead to public debate by the citizens and their elected representatives. Use of financial reporting by citizens and legislative and oversight officials to assess accountability is pervasive and is implied in the uses noted above.
>
> The Board also believes that financial reporting should provide information to assist users in assessing interperiod equity by showing whether current-year revenues are sufficient to pay for current-year services or whether future taxpayers will be required to assume burdens for services previously provided.
>
> Financial statements are the core of financial reporting and are the principal means of communicating financial information to external users.
>
> Financial reporting should provide information about a governmental entity's physical and other nonfinancial resources having useful lives that extend beyond the current year, including information that can be used to assess the service potential of those resources. This information should be presented to help users assess long- and short-term capital needs.

Some of the most important services that state and local governments provide rely on natural resources. Without aquifers, rivers, lakes or watersheds there would be no cities. Forests, parks and other natural resources provide enormous benefits and require large outlays of funds to maintain.

Allowing these natural assets to be degraded or lost will place an incredible burden on future users and add to interperiod and intergenerational inequity issues. Yet financial and other information about these resources are largely missing from financial reports.

GASB Concepts Statement No.4 sets out definitions for elements of financial statements. Many types of natural resources seem to easily fit under these definitions. For example, reservoirs, forests and other tangible physical assets seem to meet the definition of an asset—since they are "resources with present service capacity that the government presently controls." And Concepts Statement No. 4 itself calls out pollution remediation obligations, which often can include the use of natural resources, as an example of a liability—"a present obligation to sacrifice resources that the government has little or no discretion to avoid."

GASB can make advances in this area of financial reporting. GASB can require that natural resource information be included in financial reports. Requirements could include footnote disclosure, required supplementary information or changes to financial statements. New standards can change what transactions are recorded and how they are reported. They can also change how assets are valued. Here are examples of the natural resources-related information GASB can make available to users:

- ***Footnote Disclosure.*** FASB requires oil and gas companies to disclose information on the quantity and value of their oil reserves in the footnotes to their financial statements. GASB could require similar information about water reserves and trends in footnote disclosure, as well as other information relating to a government's natural resource supply and demand.

- ***Required Supplementary Information (RSI).*** RSI currently includes budget, statistical, demographic and economic condition information. This can include historical trend information for revenues and expenses, population, income, employer and taxpayer information and other items of general interest. GASB could require information related to water, wastewater, power needs, usage, delivery, etc. as part of this information.

- ***Financial Statements.*** Should watersheds be valued and reported at the amount of money avoided from not having to build filtration plants, or the cost to restore them in the event of a natural disaster? Should water be treated as inventory? Should green infrastructure projects like wetlands be recorded with increasing asset values to reflect their increasing economic value as they get more established? These are just a few examples of questions that GASB has the expertise and opportunity to consider.

Recommendation

GASB should proceed to research natural resource topics with an eye towards issuing guidance in the form of a new standard. GASB can also require that natural resource information be included in financial reports, including footnote disclosure or required supplementary information. This step could include adding the general topic of natural resources to the Technical Agenda as a Pre-Agenda Research Activity. Alternatively, the Financial Reporting Model Reexamination project or other ongoing projects may also provide opportunities to incorporate these concepts. Consideration of

natural resources in financial reporting appears to comply with, and may even advance, existing GASB Concepts Statements.

Measurement Issues

A common reason given for not addressing some of these topics has been the potential difficulty one might have in ascertaining the value of natural resources. In some cases, the amounts and methods are well established; it just remains for GASB to allow or require that they be reported.

The most difficult part may be measuring the value of a natural resource asset at a reasonable amount. GASB Concepts Statement No.6 on Measurement of Elements of Financial Statements addresses many of the relevant issues in its discussion of the benefits of using initial amounts versus remeasured amounts when recognizing and reporting:

> Initial amounts generally are not as useful as remeasured amounts in providing information to assess financial position, including the service potential of assets and the ability to meet obligations when due.
>
> For assets that will be used in providing services, a remeasured amount reflects an assessment of the value that the use of those assets will provide in the future.
>
> Remeasured amounts reflect the conditions in effect at the financial statement date and may be determined using a number of methods.

For the purposes of valuing natural capital, the remeasurement attribute of replacement cost is likely to be the most appropriate method. Replacement cost is the price that would be paid to acquire an asset with equivalent service potential in an orderly market transaction at the measurement date. For example, what would it cost to restore the forest in the event of a large wildfire that impacts a city's drinking water source?

Replacement cost, in the context of natural capital, is an objective method because it uses known costs associated with real transactions. Data is available on the tens of thousands of acres of land that are restored in the U.S. every year by governments, non-profits and companies. In addition, the costs associated with restoration of different kinds of forests, wetlands, and other categories of natural capital, under different conditions, are well documented and often categorized into NAICS codes, a national economic accounting standard established by the federal government.[16]

Standardized replacement cost methods could also ensure comparability between governments, while at the same time reducing the effort required to produce estimates, especially for small local governments with limited capacity. At the most basic level, this might consist of a database of replacement costs for different natural capital asset types (e.g. forests, wetlands) adjusted for the costs in different regions of the U.S (e.g. using a regional price index).

[16] https://en.wikipedia.org/wiki/North_American_Industry_Classification_System

Cost-Benefit Considerations

The cost of producing information should be considered in relation to the expected benefits provided by that information. The costs associated with the changes being recommended in this report should be minimal in most cases—and the benefits could be substantial. For example:

- Making it clear that governmental and municipal utilities can use the Regulated Operations approach outline in GASBS 62 to address natural resource accounting issues would entail little to no cost. If an agency is then able to use that approach it can result in multiple benefits, including greater access to capital for investments that deliver system-wide efficiencies for the utility.

- Providing guidance on how to account for various natural resource markets may save preparers the time and effort of searching for appropriate methodologies to use, and would certainly provide the benefit of comparability for users.

- If GASB moves to a place where natural resources are considered in all aspects of preparing new standards, any costs and benefits would be considered at that time. Providing that guidance "upfront" consistently will help entities account properly from the beginning when implementing a new standard.

- Developing a new standard for natural resources will involve some costs. The extent of those costs will depend largely on how GASB chooses to provide its guidance. A requirement to change or update the value of assets or liabilities may be significant. However, a potentially significant cost for remeasurement of assets or liabilities does not automatically rule out the use of a remeasured amount. Failure to remeasure may lead to incomplete or misleading information being reported in financial statements, and significant long-term costs to governments. The benefits of providing more information to users of financial statements could easily outweigh these costs.

Conclusion & Recommendations

GASB has the opportunity, expertise, and credibility to provide leadership in natural resources accounting, an area that is vitally important to state and local governments—and will become increasingly more so. GASB can begin with relatively easy steps, but will need to take on some larger issues in the not-too-distant future. Rather than a burden, this can be viewed as an opportunity to take leadership and get ahead of these issues. To recap the recommendations in this report:

- GASB should include official guidance on the use of Regulated Operations in their next Implementation Guide. As other examples of using current guidance to apply to natural resource issues become known, GASB should be willing to provide more explicit assurance that standards that were written without natural resources in mind can still be used for these purposes.

- Environmental markets in the U.S. have reached a level of maturity and scale at which the key issues are known and accounting guidance is needed. GASB and FASB can build upon previous discussions and guidance related to environmental markets to date, which have been focused on carbon for the most part, and potentially solve issues related to a broader set of environmental markets at the same time. GASB for example has added the topic of Emissions Trading (Carbon Credits) to its list of Potential Projects, and this will be considered at the upcoming GASAC meeting in March. Due to the public-private nature of many of these markets, it may be appropriate to initiate a joint project between the GASB and FASB.

- Natural resources could be considered as simply another variant that can often use the same guidance that would be appropriate for all other purposes. However, at times special consideration may be required to make sure that guidance is appropriate for natural resource elements. To ensure this occurs regularly, GASB could require explicit consideration of natural resources in internal procedural documents such as the GASB's Research and Technical Activities (RTA) Manual, or the guiding principles in GASB's Rules of Procedure.

- GASB should proceed to research natural resource topics with an eye towards issuing guidance in the form of a new standard. GASB can also require that natural resource information be included in financial reports, including footnote disclosure or required supplementary information. This step could include adding the general topic of natural resources to the Technical Agenda as a Pre-Agenda Research Activity. Alternatively, the Financial Reporting Model Reexamination project or other ongoing projects may also provide opportunities to incorporate these concepts. Consideration of natural resources in financial reporting appears to comply with, and may even advance, existing GASB Concepts Statements.

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Acknowledgements

We would like to acknowledge the expert reviewers who provided valuable feedback on this report, including:

- Wayne D. Gerhold
- James C. Lanzarotta
- Michele Mark Levine
- Gilbert L. Southwell III
- Laurie Tish

Please note the authors are responsible for this report, and the final contents do not necessarily reflect the opinions of the expert reviewers or their organizations.

Thank you also to Jacqueline Roberts and Johnathan Ler for providing valuable research support.