5.2.2. BOND INDENTURE

The **bond indenture**, also called the **trust indenture**, is the legal document that specifies the scope and features of the revenue bond and holds the issuer to its terms.

The issuer must appoint an independent trustee to protect the bondholders' rights as stated in the indenture. This third party trustee, usually a bank or trust company, is responsible for authenticating the bonds and assuring that the issuer complies with all of the covenants specified in the indenture. Specifically, the indenture must identify:

- Purpose of the bond issue and its features
- Conditions under which the bonds may be redeemed before maturity
- **Covenants**, or promises, that the issuing company makes with respect to its behavioral obligations over the life of the bond
- Flow of funds, prioritizing the use of incoming revenue
- Procedures and remedies should the issuer default
- Rights and duties of the trustee

The bond indenture must be signed by both the issuer and the trustee.

Protective covenants are limitations agreed to by the issuer to provide protection for the bondholder from a deterioration of value and default. Included as part of the indenture, a few of them are particularly important for evaluating credit risk.

5.2.2.1. Rate Covenant

The **rate covenant** requires an issuer to set rates or fees at levels sufficient to generate revenue at some designated threshold. This threshold should be sufficient to cover the project's operating expenses and debt service, plus a reserve cushion. A satisfactory threshold typically ranges between 110% and 125% coverage for revenue bonds that operate as monopolies in their service area, such as utilities. The threshold will be higher for revenue bonds with a less certain revenue stream. The designated threshold level is known as a coverage ratio.

5.2.2.2. Additional Bonds Covenant

The bond indenture will include an **additional bonds covenant** that stipulates whether or not the issuer may sell additional bonds that share equal claims to the issuer's pledged revenue. An open-end indenture allows them; a closed-end indenture does not.

With an open-end indenture, the additional bonds covenant requires the issuer to ensure that its expected revenue stream from the existing bond is sufficient to cover both existing and proposed debt service. Before making a new issue of a bond, the issuer must provide a financial statement that demonstrates its ability to fund the new bond without deteriorating the value of its existing bonds. Like the rate covenant, the additional bonds covenant is usually expressed as a percentage. Revenue must be sufficient to cover, for example, 125% of current and future debt service. The intent of this covenant is to ensure that future debt issuance does not create too great a burden on the issuer's revenue stream.

5.2.2.3. Operations and Maintenance (O&M) Covenant

An **operations and maintenance covenant** requires the issuer to maintain the facility financed by the bond in good working order throughout the bond's life. The covenant may commit the issuer to hire an independent engineering firm to review the project annually and comply with its recommendations.

5.2.2.4. Other Protective Covenants

An insurance covenant is a promise to bondholders that the issuer will carry enough insurance to protect the project against damage or destruction to the facility. A financial reports covenant requires the issuer to keep financial reports and have them audited annually by an outside certified public accountant.

5.2.3. REVENUE PLEDGE COVENANT AND FLOW OF FUNDS

The flow of funds requirement is a statement showing the process by which pledged revenue is distributed into the various accounts established by the bond indenture. Depending on the type of commitment made in a **revenue pledge covenant**, funds would be distributed, first, to fund either its debt service fund or its operations and maintenance expenses.

The flow of funds is distributed according to either a net revenue or gross revenue structure. A **gross revenue pledge** allocates funds to debt service before any other expenses are paid. A **net revenue pledge** requires that funds flow first into the O&M fund before any funds are allocated to debt service. The net revenue pledge is more common, as covering operations and maintenance helps to ensure that the facility continues to be able to create revenue.

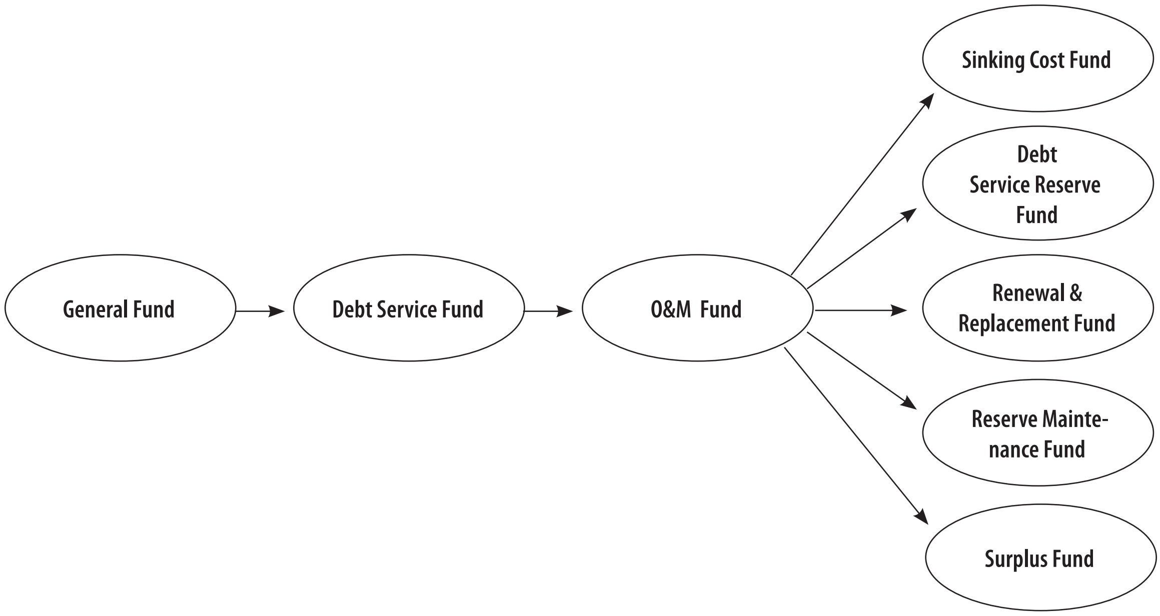
Mnemonic: Remember that in a gross revenue pledge, funds go to debt service before operations and maintenance, which might make the facility gross.

Revenue is usually deposited immediately upon receipt into a **revenue fund** or general fund, from which it is disbursed to the other funds. The **debt service fund** and **operations and maintenance fund** cover debt payment and O&M cost requirements, respectively, and are filled before all other funds.

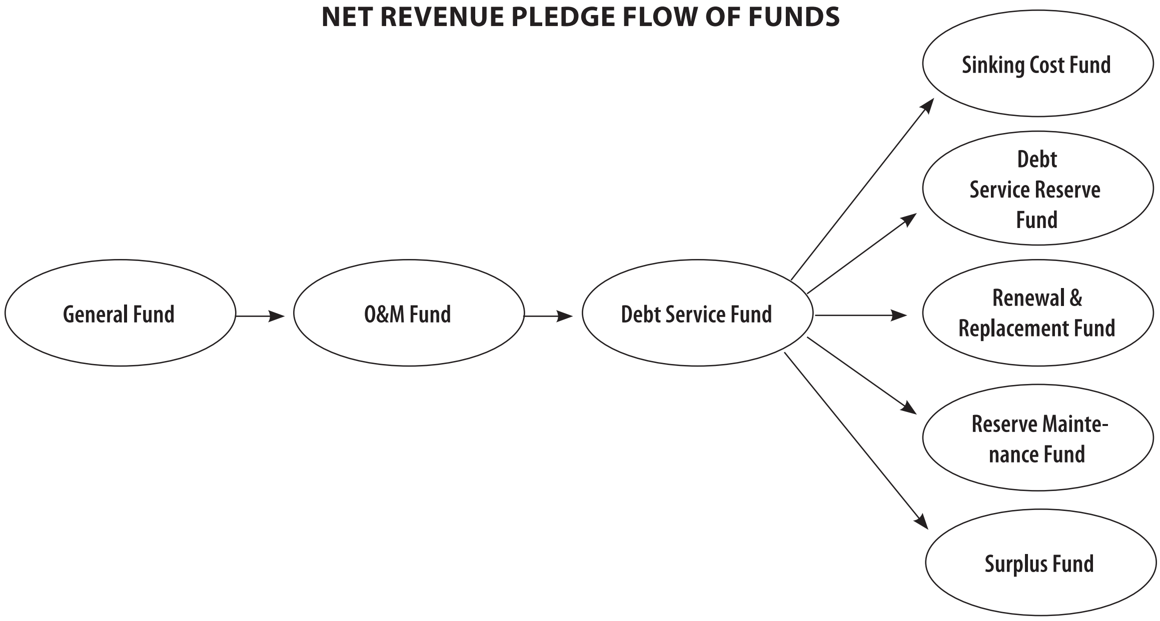
For any remaining revenue, term bonds generally have a **sinking cost fund** to set money aside to buy back callable bonds or to buy back non-callable bonds in the open market. Serial bonds typically do not need a sinking fund, since part of the bond issue comes due every year. Instead, they use a **debt service reserve fund** to set money aside in case the debt service fund is insufficient to make a future payment. If the debt service reserve fund is used, issuers are usually required to replenish the fund from their first available revenue. The reserve fund for the funding of a water treatment plant, for example, might be replenished by a city's or county's general fund or by excess cash reserves from another project.

After the debt service reserve fund, money goes to the **renewal and replacement fund**, which is a reserve to pay for project repairs and the replacement of worn-out equipment over the life of the project. Bonds may also have a **reserve maintenance fund**, which protects against unanticipated maintenance costs. In case any money remains to be distributed, a **surplus fund** is set up to be used for any purpose, such as early redemption or a reduction of user payments.

GROSS REVENUE PLEDGE FLOW OF FUNDS



NET REVENUE PLEDGE FLOW OF FUNDS



5.2.4. DEBT SERVICE COVERAGE RATIO

One measure of the liquidity of the flow of funds is the **debt service coverage ratio**, a ratio that measures how well an issuer's operating income is able to cover its outstanding debt payments. This ratio is one of the most important aspects of revenue bond analysis.

$$\text{debt service coverage ratio} = \frac{\text{net operating income}}{\text{current debt service}}$$

The **net operating income** of a project is its total revenue minus operating expenses (including cost of goods sold), but it does not subtract tax liability or interest paid on debt.

Current debt service refers to any bond payments that are due within one year.

A ratio of less than one indicates that cash flows are insufficient to pay for an issuer's annual principal and interest payments. A ratio of two or above is generally considered acceptable for an issuer of a revenue bond.

For example, a debt service coverage ratio of 2.2 would mean that a project was a good candidate for a revenue bond.

Example: Debt Service Coverage Calculation for Goodville Water Treatment Facility

Total Revenue	$273,000,000
Total Operating Expenses	$75,000,000
Net Operating Income	$198,000,000
Revenue Bond Service Payments	$90,000,000
Net Income-$108,000,000	

Debt Service Coverage Ratio

$$\frac{\$198{,}000{,}000}{\$90{,}000{,}000} = 2.2$$

EXERCISE

FILL IN THE BLANK.

1. **A covenant that allows the issuer to sell additional bonds is called a(n) ____ indenture.**

2. **A covenant that does not allow the issuer to sell additional bonds is called a(n) ____ indenture.**

3. **A covenant that requires the municipality to maintain the facility financed by the bond is called a(n) ____ covenant.**

4. **A covenant that requires bondholders to carry enough insurance to protect against damage or destruction to the facility financed by the bond is called a(n) ____ covenant.**