

**ROBERT F. WAGNER SCHOOL OF PUBLIC SERVICE
NEW YORK UNIVERSITY**

International Development Projects Planning (IDPP)

Code: URPL-GP.2652.S.001

Fall 2011

Friday and Saturday 9:00am - 12:00 pm

Location : To Be Announced

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Introduction

Since the mid-seventies, the “project approach” to development aid has come under criticism and, more than three decades later, “project aid” is no longer the only, or, for some international development agencies, the preferred form of development assistance.

This reflects a change in development thinking. Early views (in the 50’s and 60’s) that exclusively focused on the shortage of financial resources for sector investments as the critical constraint for development, have been increasingly broadened, shifting the attention to the policy and institutional context within which investment projects take place. Reflecting such shift, various forms of “program” or “policy-based” assistance, as opposed to specific project financing, have emerged as new aid modalities.

The formulation and selection of investment projects is now increasingly subordinated to the development of sector-wide programs, (in turn framed by medium-term public expenditure frameworks) which are meant to ensure that projects are consistent with good macro and sectoral policies and are financially and institutionally sustainable.

But if planning investment projects is no longer the only, or the main, concern of aid agencies, the task has not gone away or lost its critical importance for aid-recipient governments (central and local) in developing countries. Welfare is improved through investment in change and a substantial part of available resources are invested in projects. Good policies and institutions are critical, but without appropriate investments, the best policies, and most performing institutions, will not deliver sustained economic and social development.

Having lost their absolute prominence as *development aid* instruments, investment projects remain a key instrument of *development administration*, and still an important vehicle of international assistance¹. In fact enthusiasm for a “program approach” to aid delivery should not obscure the wide array of aid modalities that is often necessary to deploy, as well as the importance of specific investment projects among them. There is therefore a continuing role for projects as both (a) a way of managing *government interventions* and (b) a mode of *donors’ intervention*, where this is made consistent with the objectives of national programs developed and owned by national authorities.

Project planners in governments and aid agencies continue therefore to face the challenge of ensuring the technical quality, the financial sustainability and the economic, social, institutional and environmental viability of development projects.

Course Description

Goals and Scope of the course

The Course aims at providing students with:

1. An introduction to financial and economic analysis of investment operations and its application to the planning and appraisal of international development projects.
2. An opportunity to acquire and practice basic skills for the financial and economic appraisal of selected urban/rural infrastructure and income-generating projects of moderate scale and complexity in a developing country

To these ends, the course will introduce the basic concepts and techniques for integrated appraisal of public and private investment projects in developing countries, including :

- a) financial analysis
- b) economic analysis
- c) risk analysis
- d) assessment of projects' distributional effects (winners and losers) and
- e) assessment of projects' impact on poverty.

Format

The class will meet twice a week from 9:00am to 12:00pm, on Friday and Saturday for 5 weeks, as follows.

October - November 2011							Search Calendar
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Oct 16 - 22	Oct 16	17	18	19	20	21 9:00am IDPP	22 9:00am IDPP
Oct 23 - 29	23	24	25	26	27	28 9:00am IDPP	29 9:00am IDPP
Oct 30 - Nov 5	30	31	Nov 1	2	3	4 9:00am IDPP	5 9:00am IDPP
Nov 6 - 12	6	7	8	9	10	11 9:00am IDPP	12 9:00am IDPP
Nov 13 - 19	13	14	15	16	17	18 9:00am IDPP	19 9:00am IDPP

The Friday sessions will include the main lecture; review of the homework assigned the preceding week and class discussion. The Saturday sessions will include a second shorter lecture and in-class Lab work to model and analyze three major project cases: (i) a rural income-generating project (ii) a transport infrastructure project and (iii) a small urban water supply project.

Assignments and Final Exam

Students will be required to:

1. Carry out two homework exercises which will be assigned in the first and second week
2. Complete the appraisal of two “major” project cases, through a combination of in-class guided lab work and individual off-class work
3. Take a final exam (“take-home”).

The final grade will reflect performance on all the above and will be calculated based on the following weights: Exercises (20%), Major cases (45%) Final Exam (35%)

Textbooks

The main textbook used throughout the course is:

1. G. Jenkins, A. Harberger et al. Integrated Appraisal of Investment Projects : Concepts and Practice, Cambridge Resources International (2004) (available on the class Blackboard)

The following texts will also be used in the course. They can be downloaded from the Asia Development Bank and World Bank websites.

2. Guidelines for the Economic Analysis of Projects Asian Development Bank (1998) (http://www.adb.org/documents/guidelines/eco_analysis/default.asp)
3. Pedro Belli et al., Handbook on Economic Analysis of Investments Operations. World Bank (1998) (<http://www.worldbank.org/education/economicsed/project/projwork/Handbook.pdf>)

Readings and reference materials

All readings and reference materials will be made available to students through the class Blackboard.

Computer Hardware and Software

Students are expected to bring to class a laptop running **a version of the MS Windows OS** (XP, 2000, Vista or Windows 7) and a compatible version of **MS Excel**. Additional software for risk analysis (Oracle Crystal Ball-academic time-limited version) will be provided by the instructor to all students for installation in individual laptops.

NOTE : Students who own a laptop running a Mac OS, should also install the MS Windows OS, as Crystal Ball only runs on it

Course Schedule

Week 1		Projects Financial Analysis (Sect.1)
Friday October 21	Introduction	Overview of the objectives, scope and logistic of the course
	Lecture 1 A	<p>PART 1: Projects, Project Cycle and Project Appraisal</p> <ul style="list-style-type: none"> <input type="checkbox"/> projects vs. other policy instruments <input type="checkbox"/> projects as instruments of development planning and administration <input type="checkbox"/> projects as modality of development aid <input type="checkbox"/> project cycle management (PCM) <input type="checkbox"/> the project planning process <input type="checkbox"/> dimensions of project appraisal <input type="checkbox"/> financial and economic appraisal methods (CBA, CEA, CUA) <p>PART 2: Basic Concepts in Project Appraisal</p> <ul style="list-style-type: none"> <input type="checkbox"/> projects as welfare improvements <input type="checkbox"/> projects as incremental changes <input type="checkbox"/> incremental costs and opportunity costs <input type="checkbox"/> incremental benefits, cost savings and avoided costs <p>PART 3: Multiple Points of view in Project Appraisal</p> <ul style="list-style-type: none"> <input type="checkbox"/> Multiple POV in Project Appraisal <input type="checkbox"/> the POV of the project sponsor/owner (equity holders) <input type="checkbox"/> The Total Investment (or Banker's) POV <input type="checkbox"/> The project (Financial Efficiency) POV <input type="checkbox"/> The project (Economic efficiency) POV <input type="checkbox"/> Financial vs. Economic Analysis <input type="checkbox"/> Other POV (The fiscal/budget POV, The domestic economy's POV)
Saturday October 22	Lecture 1 B	<p>PART 1: The "Discounted Cash Flow" (DCF) technique</p> <ul style="list-style-type: none"> <input type="checkbox"/> Project Timeline <input type="checkbox"/> Typical Project cash flow profiles <input type="checkbox"/> Discounting and Compounding <input type="checkbox"/> time units (years/other) <p>PART 2 : Construction of Projects Cash Flow Models</p> <ul style="list-style-type: none"> <input type="checkbox"/> Cash Flow by Flow categories <input type="checkbox"/> Cash Flow by Inflows/Outflows type <input type="checkbox"/> Financial Modeling of projects with Excel (basic rules) <p>PART 3 : Investment Criteria</p> <ul style="list-style-type: none"> <input type="checkbox"/> Net Present Value (to select among mutually exclusive projects) <input type="checkbox"/> Benefit-Cost Ratio (to rank mutually non-exclusive projects) <input type="checkbox"/> Other metrics (Internal Rate of Return, Pay-back period) <input type="checkbox"/> Excel functions (NPV, IRR, etc.) <input type="checkbox"/> estimation and use of debt service ratios (ADSCR and DSCR)

Lab Work	Understanding different POV in project appraisal. The case of an agricultural diversification project from the point of view of (i) the individual farmers involved (ii) the total project financial efficiency (iii) the domestic economy, and (iv) the Ministry of Agriculture.
Assignment	Assignment # 1 (due on Thursday, October 27) <input type="checkbox"/> The concept of opportunity cost <input type="checkbox"/> Multiple Points of View (POV) in project appraisal <input type="checkbox"/> Investment Criteria <input type="checkbox"/> Ranking of alternative projects

Week 2		Projects Financial Analysis (Sect.2)
Friday October 28	Review	In-class review of previous week lab work and Assignment #1
	Lecture 2 A	PART 1: Use of consistent prices in project appraisal <input type="checkbox"/> Definition of Prices and Price Indices <input type="checkbox"/> Incorporating Inflation in the Financial Analysis <input type="checkbox"/> Impacts of Inflation on Financial Cash flow <input type="checkbox"/> Inflation and rates of exchange <input type="checkbox"/> Inflation and Interest Rates PART 2 : Financial Cost of Capital <input type="checkbox"/> Discount Rates in Financial Analysis from different POV <input type="checkbox"/> Required Return on Equity (ROE) <input type="checkbox"/> Weighted Average Cost of Capital (WACC) <input type="checkbox"/> Consistency Check for Financial Points of View
Saturday October 29	Lecture 2 B	PART 1 - Scale, Timing, and Length of life <input type="checkbox"/> Determination of Scale in Project Selection <input type="checkbox"/> Timing of Investments <input type="checkbox"/> Adjusting for length of life in project appraisal <input type="checkbox"/> Projects with Interdependent and Separable Components
	Lab Work	Appraisal of a Rural Income-generating project The case of the “Incentives to Women Farmers” (IWF) project from Nicaragua. Presentation of the project logic and distribution of a template for financial and economic analysis. In-class work to complete the financial analysis from the total project point of view.
	Assignment	Assignment # 2 (due on Thursday, November 3) <input type="checkbox"/> Optimum timing of project start <input type="checkbox"/> Optimum size of project design

Week 3		Projects Risk Analysis
Friday November 4	Review	In-class review of previous week lab work and Assignment #2

	Lecture 3 A	PART 1: Assessing Project Risks <ul style="list-style-type: none"> <input type="checkbox"/> Sensitivity Analysis <input type="checkbox"/> Scenario Analysis <input type="checkbox"/> Monte-Carlo Simulations PART 2: Risk Analysis by Monte-Carlo Simulation <ul style="list-style-type: none"> <input type="checkbox"/> Building a forecasting model <input type="checkbox"/> Selecting key risk variables <input type="checkbox"/> Running simulations <input type="checkbox"/> Assessing correlation conditions among risk variables <input type="checkbox"/> Analyzing the results of simulations
	Saturday November 5	Lecture 3 B PART 1 : Using Crystal Ball to select key risk variables <ul style="list-style-type: none"> <input type="checkbox"/> developing Tornado Charts <input type="checkbox"/> developing Spider Charts <input type="checkbox"/> Simultaneous assessment of project sensitivity to multiple risk variables PART 2: Using Crystal Ball to build a custom probability distribution from available data <ul style="list-style-type: none"> <input type="checkbox"/> Getting and formatting the historical data <input type="checkbox"/> Identifying trends and disturbances <input type="checkbox"/> Determining range and intervals of the errors frequency distributions <input type="checkbox"/> computing and adjusting the errors probability distributions <input type="checkbox"/> replacing deterministic with probabilistic values in risk variables PART 3: Using Crystal Ball to fit a theoretical probability distribution to available data <ul style="list-style-type: none"> <input type="checkbox"/> Getting and formatting available data <input type="checkbox"/> Direct sampling vs. sampling from a fitted distribution <input type="checkbox"/> Using CB to fit theoretical distributions to available data. <input type="checkbox"/> Goodness-of-fit testing: visual inspection of plotted data and CB statistics <input type="checkbox"/> replacing deterministic with probabilistic values in risk variables
	Lab Work	Appraisal of a Rural Income-generating project The case of the “Incentives to Women Farmers” (IWF) project from Nicaragua. Completion of financial analysis from the individual farmers’ point of view and project risk analysis.
Week 4		Projects Economic Analysis
Friday November 11	Review	A review of lessons learned from the appraisal of the “Incentives to Women Farmers” (IWF) project (1st Lab case)
	Lecture 4 A	PART 1: Microeconomics Foundations of project appraisal <ul style="list-style-type: none"> <input type="checkbox"/> Economic vs. Financial Prices <input type="checkbox"/> Three postulates of welfare economics <input type="checkbox"/> Economic prices in undistorted markets

- ☐ Economic Prices in distorted markets
- ☐ consumer surplus
- ☐ producer surplus

PART 2: Economic valuation of Inputs and outputs

- ☐ Traded and non-traded goods
- ☐ Incremental and non-incremental inputs and outputs
- ☐ Valuation of traded inputs and outputs
- ☐ valuation of non-traded inputs and outputs
- ☐ valuation of Land
- ☐ valuation of labor
- ☐ valuation of non-marketed goods
- ☐ The economic opportunity cost of capital (EOCK)

**Saturday
November 12**

Lecture 4 B

PART1- Financial-to-Economic Conversion Factors (CF)

- ☐ Calculating CF for traded inputs and outputs
- ☐ Calculating CF for non-traded Inputs and Outputs

PART 2 - Appraisal of Transport Projects

- ☐ Forecasting Traffic
- ☐ Reduced Operating Expenditures
- ☐ Savings on Vehicles Operating Costs
- ☐ Savings of Time
- ☐ Accident Reduction
- ☐ Economic Development
- ☐ Secondary Benefits
- ☐ Investment Costs
- ☐ Routine and Periodic Maintenance Costs
- ☐ Timing of Investment

Lab Work

Appraisal of a Transport Infrastructure Project

The case of the “Toll Bridge over the Mango River “(TBMR) project from Nicaragua. Presentation of the project logic and distribution of a template for financial and economic analysis. In-class work to complete the financial analysis from the point of view of the Operating Authority.

Week 5

Projects Distributional Analysis

**Friday
November 18**

Review

In-class review of previous week lab work

Lecture 5

PART1: Distribution Analysis

- ☐ Externalities and the project FNPV and ENPV
- ☐ Identification of Stakeholders
- ☐ Stakeholders sharing the FNPV
- ☐ Distribution of ENPV among stakeholders

PART 2 : Poverty Impact

- ☐ Poverty Impact Ratio
- ☐ Poverty impact of transport projects

□ Poverty impact of water supply projects

**Saturday
November 19**

Lab Work

Appraisal of a Transport Infrastructure Project

The case of the “Toll Bridge over the Mango River “(TBMR) project from Nicaragua. Completion of the project appraisal from the economic efficiency and distributional point of view, and related risk analysis.

FINAL EXAM

Individual Take Home Final Exam is assigned. Deadline for submissions (e-mail to the Instructor ,with copy to the TA) is midnight of Monday, December 5, 2011