SCIE3366
Project and Risk Management

Lecture Notes - Semester 1, 2013

A project
- A **project** is a time-limited endeavour undertaken to meet specific goals or objectives.
    - Project has a specific start and end date→ these are things you sign on and can be taken to court
    - Without this, it's not a project
    - If you can't find a goal your project is poorly planned

Project management
- is the combined art & science of planning, organizing and managing resources to get a particular project done
    - on time
    - within budget
    - with results satisfying the set goals.

Aim of a project:
A 'project' is a plan to get something done…
                - on time
                - within budget
                - to specifications
Once you have a project with these three things then you have 7 steps (outlined below).

Defining features of a project
1. Has a definite goal or objective
2. Has a definite start and end in time
3. Is unique
4. Needs time
5. Needs planning
6. Needs resourcing, money
7. Involves uncertainties, risks

- Even if you repeat a project with the same team and things one thing won't be the same → the start and end time will be different- the environment will be changed ie. Government, cost, you will already have more experience, so you would have learnt a few things therefore the project is not the same

Project characteristics:
Many classification schemes of projects exist. Here's one:
1. Time frame
2. Risks, uncertainties
3. Irreversibilities
4. Expected benefits vs. initial outlays
5. Complexity
6. Sequences
7. Newness of project (available knowledge? technology?)
8. Private vs. public : costs vs. benefits
9. Externalities expected
10. Stakeholder consensus
11. Scope: Local vs. national vs. international
12. Ethical aspects (animals, environment), equity (people)

Project characteristics

Time frame	short	medium	long	
Risks, uncert'ties	small	medium	large	extreme
Irreversibilities	none	some	serious	
Benefits / outlays	small	medium	large	
Complexity	simple	medium	complex	
Sequences	one	two / three	many	overlaps
Newness	some	a lot	everything	
Private vs. public benefits & costs	Priv benefits Pub benefits	Priv benefits > Pub costs	Priv costs < Pub benefits	
Externalities (+/-)	environment	social	technology	market
Stakeholder cons	good	marginal	bad	threatening
Geograph. scope	local	national	international	
Ethics / equity	marginal	important	crucial	

Types of projects
1. Civil engineering: earthworks, bridges…
2. IT projects: hardware, software products
3. Urban planning, housing (≠ zoning!)
4. Transport / network projects (train line…)
5. Financial : investments, loans…
6. Development projects in poor countries
7. New school curriculum (e.g. UWA 2012)

How do these differ?
They differ by the project (the outcome they deliver) also differ from what comes in (people, skills)
- Product, outcome
    - Known / totally new
    - Up-market / mass consumption
    - With / without risks for the public / environ't
    (etc.)
- People, skills
    - Experience (little / lots)
    - Networks (small / large)
    - Entrepreneurship, initiative, creativity…
    (etc.)

Resources = constraints
- Resources: having X means "≥ X"
    - Time (You have 5 hours = at least 5 hours)
    - Money, finance, capital
    - Land, space, room
    - Skills, people… and trust, loyalty…
- Constraints: having X means "≤ X"
    - Time (You have 5 hours = at most 5 hours)
    - Money, finance, capital
    - Land, space, room
    - Skills, people… and trust, loyalty…
- Resources will limit what you can do- quality and time are usually linked
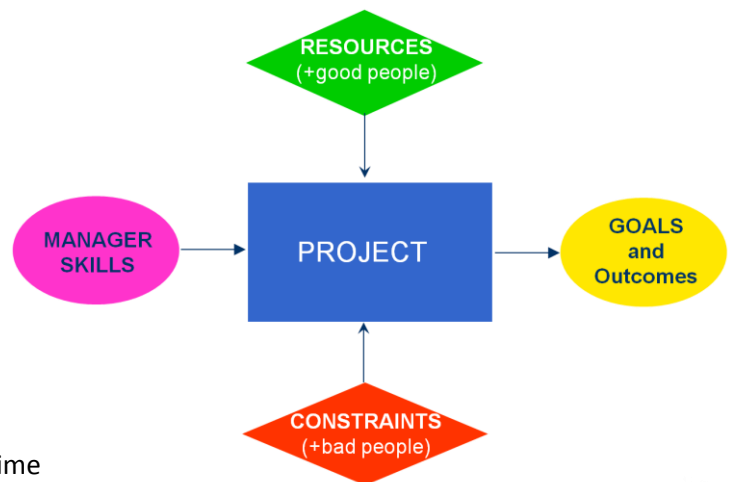
Aim of project:
- A 'project' is a plan to… / Project managers must…get something done
- In as little time as possible (why?)
- With the best quality outcome
- Using resources as best as possible
- While meeting the project's constraints
- (≈ a constrained optimization problem over time)

2 specific project types
NRM = Natural Resource Management
- with available knowledge & technologies

R&D = Research and Development
- to develop or apply new knowledge or technologies

Similarities:
NRM projects and R&D projects
Clean up a river – New pesticide
1. Long time frames
2. Complex

Differences?…

NRM projects	R&D projects
1. On-the-ground	1. High uncertainty
2. Many stakeholders	2. New, innovative
3. Often very political	3. Brainy, desk-top
4. Interdisciplinary	4. Specialised
5. (−) irreversibilities	5. (+) irreversibilities
6. Bad stakeholder consensus	6. Good stakeholder consensus

E.g. **Clean up a river**   E.g. **Develop new drug**