

# **A study on funding and risk analysis of hydroponics: The Case of Pavaki Designs**

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## **Abstract**

Hydroponics is the process of cultivating agricultural crops without soil by providing required water and sunlight. The project involves different types of funding available for the process, Government support and also analyses the risk involved in the project as it can be a revolutionary and disruptive method of Agriculture. Any business involves two factors, one is a risk and the other one is return. The project can yield some percentage of return whereas the return yielded shall be more than the cost of debt. The company needs very good financial expert as the partners are purely engineering background. The company is much stronger in terms of technology but lacks in financial and marketing experts. The company is unable to expert advice as the expertise advice is much costly affair. The company has the best technical team and good research department. The next upcoming projects are innovative and trend-setting projects. The best capital structure is 65% of Loan and 35% of Own Contribution. Even though the rest are giving less than 6.71% the rest of the options are risky and the sensitivity towards repairs is at higher rate of 40.45%. Most likely increase in repairs expense at 40.45% makes profit zero and also the sensitivity towards cost of machinery is 0.3236%. if the cost of machinery increases by 0.3236% then the profit becomes zero

## **Introduction**

In the present situation, finance is referred as the provision of money at a time when it is required. Every enterprise or industry or company whether it is a big, small or medium needs finance to carry on its operation and achieve its targets. In fact, finance is so indispensable that it is rightly said that it is the “life blood of an enterprise”. Without adequate finance, an enterprise cannot think of its existence. The study of principles, practices, procedures and problems concerning financial management of profit-making organization engaged in the fields of industry, trade and commerce is undertaken under the discipline of “business finance”.

Finance is referred to as the provision of money at a time when it is required. Finance refers to the management of flow of money through an organization. Financial management involves managerial activities concerned with the acquisition of fund for business purpose. the finance function deals with procurement of money taking into consideration today's well as future needs of a business finance is required to purchase a machinery, raw materials to pay salaries and wages and also to meet day-to-day expenses of the business.

According to F.W. Parish, finance may be defined as “the provision of the money at time is wanted”. Thus it highlights central core of finance function i.e., procurement of funds, but to confine it to his aspects is a narrow view. Finance function is a broader function. It is deeply concerned with the economics and effective use of funds. John J. Hampton defined it as, “the management of the money flow through an organization”. In the sense, it involves the proper custody and authorized utilization of available funds. The third approach is concerned with the financial decision making. It is related to procurement of funds and as well as their effective utilization.

The term business finance is composed of two words business and finance. Thus it is essential to understand the meaning of these two words, which is the starting point to develop the whole concept of finance. According to Gouthmann and Dougall, business can be broadly defined as “the activity concerned with planning, raising, controlling and administering the funds used in the business”. According to Kriz and Dugger, “Business finance is the flow of capital and credit that makes business possible”. The major functions of business finance are financing or capital-mix decision, funds requirement decision, investment or long-term asset-mix decision, dividend or profit allocation decision, liquidity or short-term asset-mix decision.

Hydroponics is the process of cultivating agricultural crops without soil by providing required water and sun light. The project involves different types of funding available for the process, Government support and also analyses the risk involved in the project as it can be a revolutionary and disruptive method of Agriculture. Any business involves two factors, one is risk and the other one is return. The project can yield some percentage of return where as the return yielded shall be more than the cost of debt. Analysing the percentage or amount or rate of risk involved in such innovative projects is my project. This project is useful for society and also for the economy. The project is concerned with only Hydroponics. The funding

aspect in this project is capital structure and weighted average cost of capital. Capital structure can be of any ratio. Own capital and leveraged capital are the types of capital involved. Analysing the different combinations of own capital and leveraged capital will help us to know the least cost of debt that can be paid by the company.

### **Risk analysis and capital budgeting**

For determining the validity of long-term investments, risk analysis is without equal in terms of providing measured assessments of targeted risk factors. With today's market uncertainty as well as the glaring unknown of the future, safeguarding and securing your company with expert insights regarding investment outcomes is simply the smart way to do business. For example, if your organization is part of the IT industry, then a risk analysis can be useful to position technology-related goals with a company's business strategies. In capital budgeting, allocating resources towards necessary capital expenditures can result in increased value for shareholders, but this is only applicable if a company has exercised wise investment practices.

Risk analysis is, therefore, imperative in the context of long-term investment decision-making measures. By constructing a process for appraising new opportunities, organizations can develop long-term objectives, estimated future cash flows, and command capital expenditures. Risk analysis can cover several different areas of risk assessment, in targeted sectors that are pertinent to specific potential business investments. In the capital budgeting process, each of these risks focuses on an area in which some type of unpredictability could forcibly change the plan of managers. Major types of risks are standalone risk, project-specific risk, corporate risk, international risk (inclusive of currency risk), industry-specific risk, and market risk.

### **Review of literature**

Aven (2016) says 'risk assessment and management was established as a scientific field some 30–40 years ago. Principles and methods were developed for how to conceptualise, assess and manage risk. These principles and methods still represent to a large extent the foundation of this field today, but many advances have been made, linked to both the theoretical platform and practical models and procedures. The purpose of the present invited paper is to perform a review of these advances, with a special focus on the fundamental ideas and thinking on which these are based. We have looked for trends in perspectives and approaches,

and we also reflect on where further development of the risk field is needed and should be encouraged.'

In most literature, risk analysis is divided into three stages or sub-processes namely, Hazard identification, Hazard analysis, Risk assessment (or evaluation). The purpose of the first stage is to identify the hazards that could lead to breaches of safety. That of the second is to analyse the identified hazards, estimate the frequency and severity of potential harm, and thus define the risks that they pose. That of the third stage is to assess the risks against defined criteria so as to determine their tolerability. The terms 'risk analysis' and 'risk assessment' are not consistently defined. They are used differently by different authors, and sometimes they are used synonymously or interchangeably. Here 'risk analysis' refers to the total process and 'risk assessment' to its final stage.

Risk analysis is 'generic' and may be applied to any situation and any form of decision-making, from determining policy and strategy, through all levels of planning, to tactical decision-making. The nature of the application and the purpose of the analysis influence the level of formality, the techniques used, and whether a quantitative or a qualitative approach is taken. Thus, it is both useful and important to define a planning, or 'definition of scope', stage to precede the three technical stages defined above.

Glassman (2007) indicates that “Innovative financing means different things to different people. For some, it is about raising new monies for global health work (like Debt2Health), while others consider the new mechanisms as tools to make existing aid spending more effective through various means, including: 1) changing the timing of disbursements to accelerate health results (like the International Finance Facility for Immunization); 2) increasing certainty to bring down prices of commonly-purchased medicines and goods (such as the Advance Market Commitment); and, 3) changing the incentives to recipients (through results-based aid such as the Global Fund and GAVI ISS). The political economy role of innovative financing is also crucial as an antidote to donor fatigue and as a mechanism to interact more effectively with the markets that supply key global health products and services.”

Hecht (2016) opines that “unfortunately, funding your small business with grants isn't that easy. Otherwise, every small business owner on the block would cash out on them—and nobody would need to look for a loan, search out crowd funding or investing, or ask their

relatives for favors. There are two main obstacles to landing those grants. First, grants are notoriously hard to locate. Sure, there are a few websites you can use to search—like BusinessUSA or Grants.gov—but they're generally either paid services, difficult to parse, or poorly updated. Many grants and contests are outdated by the time they make it onto these lists, or else their links have changed. Regardless, looking for small business grants can frustrate even the most patient business owner. Second, grants are often hyper-specific. While some are wide-ranging, enough to apply to plenty of small businesses, especially among the corporate programs, many target a very narrow selection of categories only. (For example, how many businesses can actually qualify for the Minnesota Emerald Ash Borer Community Preparedness Forest Protection Reserve Appropriation grant program? Odds are, probably not yours.) In addition, whether it is specific to certain industries, locations, demographics, or all of the above, you can bet that grant is also limiting in *how* you can use its funds. Unlike with a loan, with a grant you will have a set of guidelines to follow—or you risk having to pay it back.

Not too long ago, we compiled our own list of 106 small business grants, organized according to Federal, State, Local, and Corporate categories, plus additional sections for small businesses owned by women, minorities, and veterans. Here are some of the most popular grants and programs we have found—hopefully your business will qualify for one, and you can be on your way to financing your business. Health-minded agricultural small businesses might benefit from the Farmers' Market Supplement Nutrition Assistance Program, which assists with outreach and education initiatives in low-income communities.

Moving from Federal to State levels, there's the Minnesota Dairy Business Planning Grant and the Minnesota Crop Research Program Grant, for just two examples. Some things to note about State grants: they're often more specific—so there's less competition—and many individual programs have relatives in multiple states. So if you would qualify for either of those Minnesota grants, but you're in Wisconsin, don't panic! There are probably similar initiatives in your neighbourhood, too.

### **Need for the study**

The process Hydroponics is the new method of Agriculture with less investment. Such projects should be analysed with respect to risk and funding aspects so that more entrepreneurs would like to take up and this helps for the growth of the economy. The major

need is as the risk analysis of such disruptive projects was not studied properly, so this project would help every individual to seek an opportunity to take up such innovative projects. The dimensions of Risk Analysis in Capital Budgeting will be studied and proper analysis of risk involved and also the funding aspects of such projects will be covered.

In conventional agriculture, soil supports a plant's roots helping it to remain upright and provides it with the nutrients it needs to grow. But in Hydroponics plants are artificially supported and a solution of ionic compounds provides nutrients instead. The major benefit of Hydroponics is increase in productivity that is using solution, artificial lights, heaters and other pieces of equipment, plants can be made to develop faster, produce larger yields and grow all year round. Hydroponics is more eco- friendly, feasibility in areas not suited to traditional farming, reduced transportation, and monoculture not a problem.

All these motivate to take up the project. Still there are some disadvantages because of which taking up such risky projects has become difficult. The major difficulties are high set – up costs, higher running costs, vulnerability, need for monitoring, and need for expertise. To overcome such disadvantages the entrepreneur and investor shall confidence in funding and implementing the project. By doing the funding and risk analysis of this project the Investors understand the actual risk involved and different types of capital structures available to reduce the cost of the debt and help for the growth of the economy by taking up such projects.

### **Data**

Data gathered through perception or questionnaire review in a characteristic setting are illustrations of data obtained in an uncontrolled situation. Secondary data is the data acquired from optional sources like magazines, books, documents, journals, reports, the web and more. The chart below describes the flow of the sources of data collection. Sources of Primary Data Collection were interview and observation. The sources of secondary data into internal as well as external sources. Inner sources incorporate data that exists and is stored in your organization. External data refers to the data that is gathered by other individuals or associations from your association's outer environment. Inner sources of data incorporate, but are not restricted only to, statement of the profit and loss, balance sheets, inventory records, case studies.

The project requires direct data from company. Some of the data shall be collected from secondary source but the entire data analysis shall be done based on the primary data like collecting the financial data from company and details about the company by doing interview with the CEO of the company. The data related to Hydroponics shall be collected from secondary sources like journals, articles, and textbooks.

### **Methodology**

Conclusive research design, as the name implies, is applied to generate findings that are practically useful in reaching conclusions or decision-making. In this type of studies research objectives and data requirements need to be clearly defined. Findings of conclusive studies usually have specific uses. Conclusive research design usually involves the application of quantitative methods of data collection and data analysis. Moreover, conclusive studies tend to be deductive in nature and research objectives in these types of studies are achieved via testing hypotheses. The techniques used in conclusive research contrast with exploratory research as they are typically more formal and structured. Most conclusive research techniques are based on large and widely spread problem and data obtained through is subjected to quantitative analysis. The major analyses done in the study are funding analysis, risk analysis, and the weighted average cost of capital using excel.

### **Result and discussion**

The result and discussion of the study is as follows.

*Table No. 1: Sales of the company over the past few months*

<b>MONTHS</b>	<b>Sum of SALES</b>
APR	330
MAY	854
JUN	2498
JUL	1635
AUG	2783
SEP	3711
<b>Grand Total</b>	<b>11811</b>

The sales increased at the beginning of April and reached around 2500 in Aug and decreased in the next year. But again it started increasing and reached to approximately 4000 by the end of Sep.

Values	Strawberry	Grand Total
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*Table No. 2: Strawberry units sold*

Values	STRAWBERRY	Grand Total
Sum of AUG	14152	14152
Sum of OCT	19047	19047
Sum of SEP	16839	16839

Here we are comparing the impact of promotional strategies monthly wise. The sales went up and down over the 3 months. The company is huge cannot reach every individual so the strategies need to be effective.



Sum of Jan-14	326	326
Sum of Jan-15	396	396

*Table No. 3: Comparison of strawberry units sold*

The sales increased. The desire of purchasing gypsy increases. The best promotional strategy used for strawberry is social media and entertainment.

*Table No. 4: Comparative Statement for the year 2012-13 and 2013-14*

<b>Particulars</b>	<b>2012-13 Rs.in Lakhs</b>	<b>2013-14 Rs.in Lakhs</b>
<b>Liabilities</b>		
Capital	35.05	35.05
Reserve & fund	44.05	65.13
Loan	105.17	105.17
Current liabilities	8.71	6.97
Net profit	9.53	10.62
<b>Total liabilities</b>	<b>202.51</b>	<b>222.94</b>
<b>Assets</b>		
Fixed assets( less depreciation)	133.22	124.94
Investment	0	0
Current assets	63.42	93.69

Differed revenue expenditure	5.87	4.31
<b>Total Assets</b>	<b>202.51</b>	<b>222.94</b>

### Funding Analysis

Based on the given Balance sheet of the company for the past two years the inference can be as follows. Sources of funds are total amount required for the project is 140.22 lakhs. The 25% of the required amount was invested by the partners around 35.05 lakhs. The rest of the amount of 105.17 was taken as loan. Application of Funds were invested in assets like land, labour, capital and organisation.

*Table No. 5: Sources and Application of funds*

<b>Particulars</b>	<b>2012-13 Rs.in Lakhs</b>	<b>2013-14 Rs.in Lakhs</b>	<b>Source/ application</b>
<b>Liabilities</b>			
Capital	35.05	35.05	source
Reserve & fund	44.05	65.13	
Loan	105.17	105.17	source
Current liabilities	8.71	6.97	
Net profit	9.53	10.62	
<b>Total liabilities</b>	<b>202.51</b>	<b>222.94</b>	
<b>Assets</b>			
Fixed assets( less	133.22	124.94	Application

depreciation)			
Investment	0	0	
Current assets	63.42	93.69	
Differed revenue expenditure	5.87	4.31	
<b>Total Assets</b>	<b>202.51</b>	<b>222.94</b>	

There are different opportunities available out there, which has different interest rates. The following are the different options available.

*Table No. 6: Capital break-up*

<b>Options</b>	<b>Loan</b>	<b>Own contribution</b>
I	70%	30%
II	80%	20%
III	65%	35%
IV	60%	40%
V	50%	50%

Let us the total overall cost of capital that is to be paid for the capital acquired. Assumption is that since this is partnership and registered the deed does not mention anything in specific about interest on capital as per Partnership Act 1932 the effective interest on capital is 6% p.a.

The amount taken from bank reduced to 70% and own contribution is 30% the company's overall cost of capital increased from 7.65% to 7.68%

*Table No. 7: WACC*

<b>Options</b>	<b>WACC</b>
ORIGINAL	7.65%
I	7.68%

The amount taken from bank reduced to 80% and own contribution is 20% the company's overall cost of capital increased from 7.65% to 8.12%

*Table No. 8: WACC (Cont.)*

<b>Options</b>	<b>WACC</b>
ORIGINAL	7.65%
II	8.12%

The amount taken from bank reduced to 65% and own contribution is 35% the company's overall cost of capital decreased from 7.65% to 6.71%

*Table No. 9: WACC (Cont.1)*

<b>Options</b>	<b>WACC</b>
ORIGINAL	7.65%
III	6.71%

The amount taken from bank reduced to 60% and own contribution is 40% the company's overall cost of capital decreased from 7.65% to 6.24%

*Table No. 10: WACC (Cont.2)*

Options	WACC
ORIGINAL	7.65%
IV	6.24%

The amount taken from bank reduced to 50% and own contribution is 50% the company's overall cost of capital decreased from 7.65% to 5.3%.

*Table No. 11: WACC (Cont.3)*

Options	WACC
ORIGINAL	7.65%
V	5.30%

*Table No. 12: WACC (Cont.4)*

Options	WACC
ORIGINAL	7.65%
I	7.68%
II	8.12%
III	6.71%
IV	6.24%
V	5.30%

The inferences are the actual cost of capital is 7.65%, the increase in bank loan increased the cost of capital, the decrease in bank loan has reduced the cost of capital, in the first option the bank loan decreased.

*Table No. 13: Comparison of bank loan percentage with WACC*

<b>LOAN</b>	<b>WACC</b>
75	7.65%
70	7.68%
80	8.12%
65	6.71%
60	6.24%
50	5.30%

*Table No. 14: Capital structure*

<b>Option</b>	<b>Loan</b>	<b>Own</b>
I	70	30
II	75	25
III	65	35
IV	60	40
V	50	50

**Risk analysis: Mean and standard deviation**

Standard deviation is a statistical technique used in capital budgeting decisions to determine the variation or deviation from the mean of cash flows of the project. The project with lesser standard deviation in cash flows carries less risk and uncertainty. Risk is measured by the possible variation of outcomes around the expected value. The capital investment decision will be taken keeping in view the variation in the expected value where two projects have the same expected value. The decision maker will choose the project which has smaller variation in expected value. In case if the life of the project and initial cash outflow of the two projects are similar, then standard deviation of both the projects can be used in selection of the

project. But when the life of the projects and their cash outflows differ, the selection of the project will be done by ascertaining the coefficient of variation instead of standard deviation.

In such circumstances, a useful measure of risk for project comparison is the coefficient of variation, which is calculated as follows

$$\text{Coefficient of Variation} = \frac{\text{Standard Deviation}}{\text{EV of Profit}} \times 100$$

A project with a higher coefficient of variation would be more risky than a project with a lower coefficient of variation.

### MEAN

*Table No. 15: Cash flow*

Month	Cash flow
JAN	9,80,000
FEB	15,00,000
MAR	12,00,000
APR	8,00,000
MAY	10,60,000
JUN	9,00,000
JUL	4,70,000
AUG	15,00,000
SEP	2,00,000
OCT	9,50,000
NOV	7,80,000
DEC	6,70,000
<b>Mean</b>	<b>9,17,500</b>

Table No. 16: The expected cash inflow with probability

Month	Cash flow	Probability	Expected
JAN	9,80,000	0.1	98000
FEB	15,00,000	0.05	75000
MAR	12,00,000	0.1	120000
APR	8,00,000	0.2	160000
MAY	10,60,000	0.05	53000
JUN	9,00,000	0.03	27000
JUL	4,70,000	0.02	9400
AUG	15,00,000	0.05	75000
SEP	2,00,000	0.1	20000
OCT	9,50,000	0.1	95000
NOV	7,80,000	0.1	78000
DEC	6,70,000	0.1	67000
<b>Mean</b>	<b>9,17,500</b>		Total = 877400

Table No. 17: Standard deviation

Month	Cash flow	Probability	Expected	Standard deviation
JAN	9,80,000	0.1	98000	10260
FEB	15,00,000	0.05	75000	31130
MAR	12,00,000	0.1	120000	32260
APR	8,00,000	0.2	160000	-15480
MAY	10,60,000	0.05	53000	9130
JUN	9,00,000	0.03	27000	678
JUL	4,70,000	0.02	9400	-8148
AUG	15,00,000	0.05	75000	31130



SEP	2,00,000	0.1	20000	-67740
OCT	9,50,000	0.1	95000	7260
NOV	7,80,000	0.1	78000	-9740
DEC	6,70,000	0.1	67000	-20740
<b>Mean</b>	<b>9,17,500</b>		877400	0

### Probability analysis

Calculating the Net Present Value for the given data based on the expected cash inflows with the given probabilities.

*Table No. 18: Cash flow (Cont.1)*

Month	Cash flow
JAN	9,80,000
FEB	15,00,000
MAR	12,00,000
APR	8,00,000
MAY	10,60,000
JUN	9,00,000
JUL	4,70,000
AUG	15,00,000
SEP	2,00,000
OCT	9,50,000
NOV	7,80,000
DEC	6,70,000

Cash outflow = 1 Crore

*Table No. 19: Calculating the sum of the cash inflows*

<b>Month</b>	<b>Cash flow</b>
JAN	9,80,000
FEB	15,00,000
MAR	12,00,000
APR	8,00,000
MAY	10,60,000
JUN	9,00,000
JUL	4,70,000
AUG	15,00,000
SEP	2,00,000
OCT	9,50,000
NOV	7,80,000
DEC	6,70,000
<b>Total</b>	<b>1,10,10,000</b>

### **Sensitivity analysis**

Advantages of sensitivity analysis are it compels the decision maker to identify the variables, which affect the cash flow forecasts. This helps him in understanding the investment project in totality. It indicates the critical variables for which additional information may be obtained. The decision maker can consider actions which may help in strengthening the "weak spots" in the project. It helps to expose inappropriate forecasts and thus guides the decision maker to concentrate on relevant variables. Disadvantages are, it does not provide clear cut results. The terms optimistic and pessimistic could mean different things to different people. It fails to focus on the interrelationship between underlying variables. For example sales volume may be related to price and cost but we analyse each variable differently.

To perform the sensitivity analysis of the Hydroponics project we need the expenses and savings of the different aspects.

*Table No. 20: Expenses and Savings*

Cost of Machinery - 2500000
Sales volume - 11000000
Cash outlay - 10000000
Repairs cost - 200000
Cost of Production - 3500000
Wages - 500000
Raw Materials - 2000000
Out Standing Expenses - 50000
Selling Expenses - 500000
Distribution Expenses - 375000
Inventory - 800000
Maintenance Cost - 160000
Factory Overheads – 570000

The Net Present Value of the project = 8090

We calculate the payback period

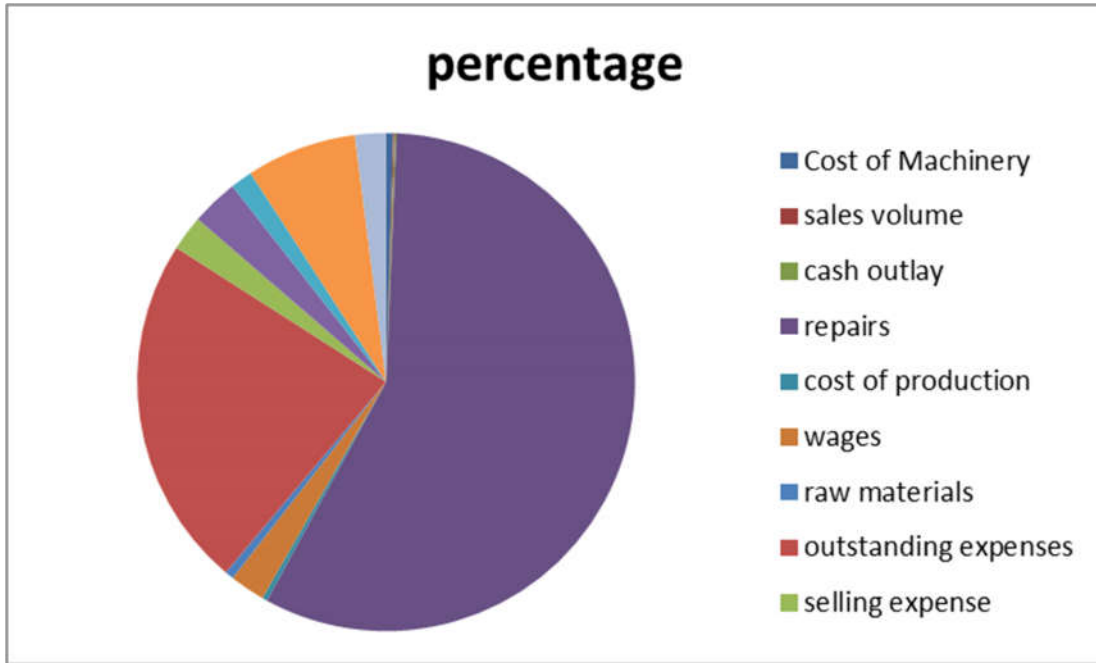


Figure No. 1: Details of expenses

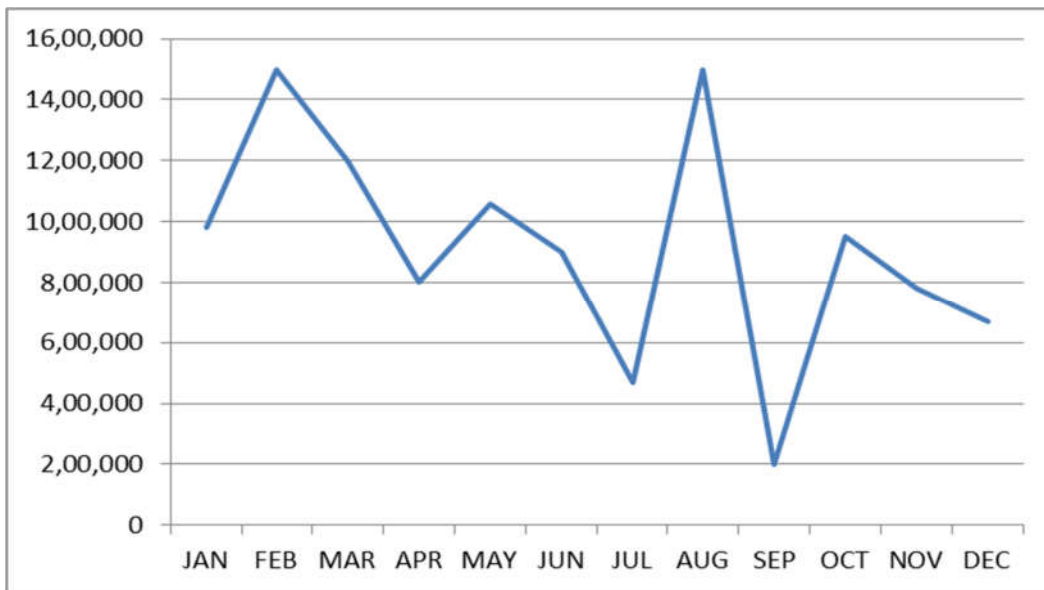


Figure No. 2: The trending line for the cash flows

**Decision tree analysis**

Based on the probability of the outcomes they are projected in the flowchart form then it is said to be Decision tree analysis.

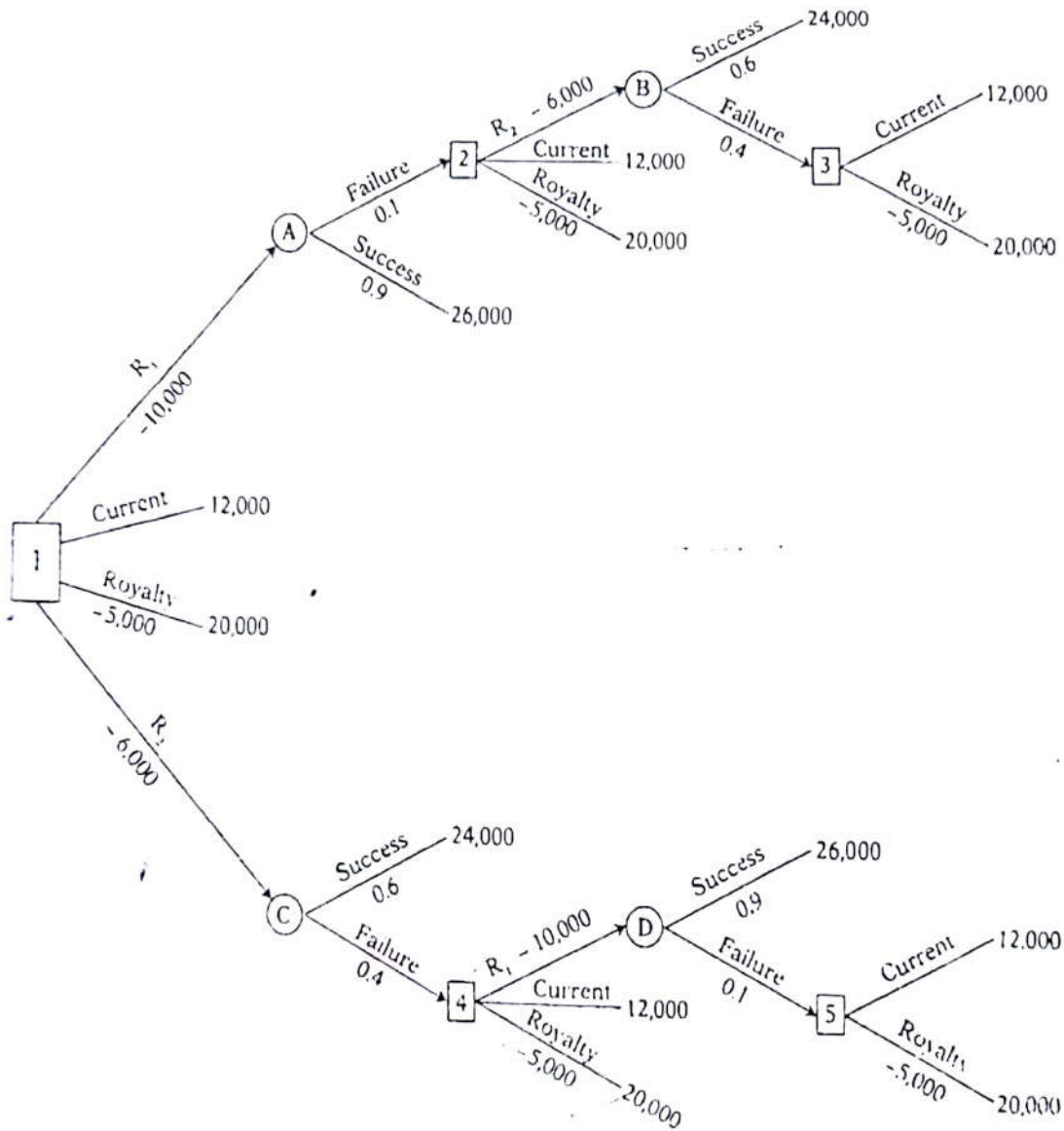


Figure No. 3: Decision tree

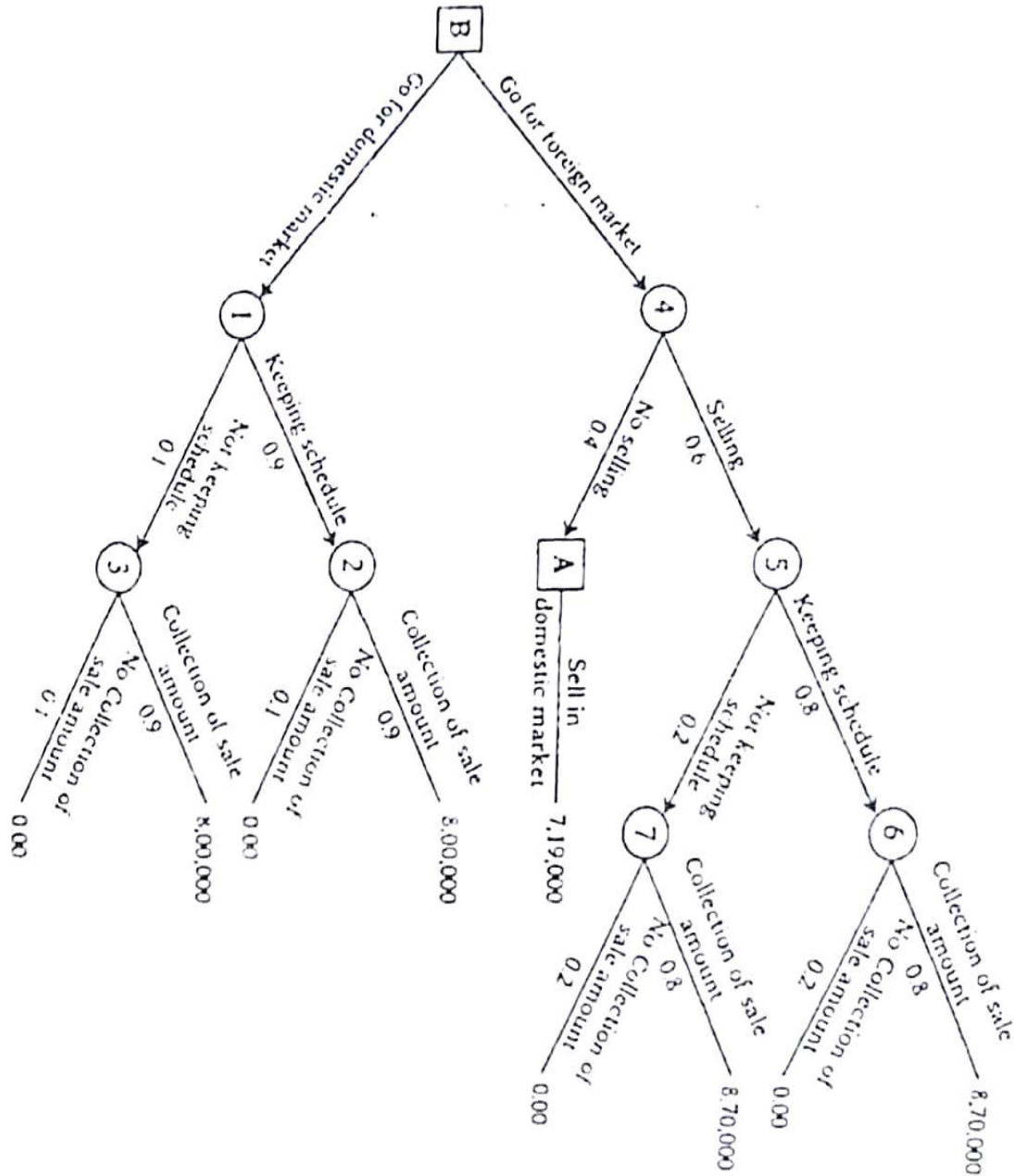


Figure No. 4: Decision tree analysis

**Net present value and profitability Index**

Advantages of the Net Present Value Method is that it is the most important feature of the net present value method is that it is based on the idea that dollars received in the future are worth less than dollars in the bank today. Cash flow from future years is discounted back to

the present to find their worth. The NPV method produces a dollar amount that indicates how much value the project will create for the company. Stockholders can see clearly how much a project will contribute to their value. The calculation of the NPV uses a company's cost of capital as the discount rate. This is the minimum rate of return that shareholders require for their investment in the company.

Disadvantages of Net Present Value are the biggest problem with using the NPV is that it requires guessing about future cash flows and estimating a company's cost of capital. The NPV method is not applicable when comparing projects that have differing investment amounts. A larger project that requires more money should have a higher NPV, but that doesn't necessarily make it a better investment, compared to a smaller project. Frequently, a company has other qualitative factors to consider.”

### **Profitability Index**

The advantage of profitability method is that it considers the time value of money and presents a relative profitability of the project. Relative profitability allows comparison of two investments irrespective of their amount of investment. A higher PI would indicate a better IRR and a lower PI would have lower IRR.

The main disadvantage of the PI method is also its relative indications. Two projects having the vast difference in investment and dollar return can have the same PI. In such situation, therefore, the NPV method remains the best method.

*Table No. 21: The cash Inflows for 12 months*

<b>Month</b>	<b>Cash flow</b>
JAN	9,80,000
FEB	15,00,000
MAR	12,00,000
APR	8,00,000
MAY	10,60,000
JUN	9,00,000
JUL	4,70,000

AUG	15,00,000
SEP	2,00,000
OCT	9,50,000
NOV	7,80,000
DEC	6,70,000
<b>Total</b>	<b>1,10,10,000</b>

*Table No. 22: Net Present Value for First Quarter*

JAN	9,80,000
FEB	15,00,000
MAR	12,00,000
<i>Cash Outlay</i>	
JAN	9,80,000
FEB	15,00,000
MAR	12,00,000
Total	36,80,000

*Table No. 23: Net Present Value for Second Quarter*

APR	8,00,000
MAY	10,60,000
JUN	9,00,000
<i>Cash Outlay: 25 lakhs</i>	
APR	8,00,000
MAY	10,60,000
JUN	9,00,000



Total	27,60,000
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*Table No. 24 Net Present Value for Third Quarter*

JUL	4,70,000
AUG	15,00,000
SEP	2,00,000
<i>Cash Outlay: 25 lakhs</i>	
JUL	4,70,000
AUG	15,00,000
SEP	2,00,000
Total	21,70,000

*Table No. 25: Net Present Value for Fourth Quarter*

OCT	9,50,000
NOV	7,80,000
DEC	6,70,000
<i>Cash Outlay: 25 lakhs</i>	
OCT	9,50,000
NOV	7,80,000
DEC	6,70,000
Total	24,00,000

Table No. 26: Overall net present value

QUARTER	NET PRESENT VALUE
First	11,80,000
Second	2,60,000
Third	-3,30,000
Fourth	-1,00,000
Total	10,10,000

The best capital structure is 65% of Loan and 35% of Own Contribution. Even though the rest are giving less than 6.71% the rest of the options are risky. The sensitivity towards repairs is at higher rate of 40.45%. Most likely increase in repairs expense at 40.45% makes profit zero. The sensitivity towards cost of machinery is 0.3236%. if the cost of machinery increases by 0.3236% then the profit becomes zero. The demand for hydroponics project is high in United States compared to India. The risk involved in the project is medium as the cost of capital is 7.65%. The outstanding payments are at sensitive of 16.18%. if the expenses increase by 16.18% then the profit becomes zero. Repairs, outstanding expenses and maintenance cost, mostly affect the profit of the company. The first six months the company is in profits and next six months the company went into losses. The loss incurred during last six months was set off with the profits of first six months. The left over profits were 10,10,000 were invested in the new production line. The company has seasonal and contracted labourers. The wages are sensitive to profits at 1.618% which is highly dangerous. If the wages increase by 1 or 2 % the company will go into losses and sensitivity chart is as follows

### Conclusion

The company needs very good financial expert as the partners are purely engineering background. The company is much stronger in terms of technology but lacks in financial and marketing experts. The company is unable to expert advice as the expertise advice is much costly affair. The company has the best technical team and good research department. The next upcoming projects are innovative and trend setting projects.

The project Hydroponics is the new trending project which involves soil less cultivation. As per the study the project is very much in use in United States of America as they are lack of proper sunlight and water. The farmers in India are partly affected by this process but the company is taking care of the welfare part of farmers to some extent. They helping the farmers with the livelihood and giving them the opportunity of taking care of plants by setting the required indoor water levels and sunlight.

The distribution channels are not so efficient and so the company is unable to reach at large extent. But the company's product that is strawberry is out and running successfully in the market with the local or private labels of few big companies. The company is next focusing on the expansion aspect with respect to creating its own brand and new production line has started.

The process of Hydroponics need not necessarily have more and more investments. Only the fertility of soil shall be taken care of as the amount of water and sunlight is automated. So frequent investment is not necessary and the amount of profit seems to be less at first time but whatever comes out later is profit. The company is not so good position but the future of company is bright as it is highly diversified and technically advanced.

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