

Appendix-I

Income Statement (From 2006/07 to 2010/11)

Particular	2006/07	2007/08	2008/09	2009/10	2010/11
Sales	621827381	634189583	746581607	1002720181	1588149524
Cost of sales	(351080038)	(389258445)	(455134052)	(621893624)	(887111747)
Gross profit	270747343	244931138	291447555	380826557	701037777
Other income	859030	1092417	1317254	30701457	1983895
Business expenses					
Distribution expenses	(16954763)	(21178947)	(25972087)	(34822854)	(49726644)
Administrative expenses	(155663785)	(186635438)	(217564636)	(244810306)	(292927203)
Profit from operation	98987825	38209170	49228086	131894854	360367826
interest	(1328931)	(8875422)	(20789989)	(26193016)	(20392656)
Depreciation	(64165899)	(60227418)	(65414572)	(67871841)	(71740948)
Impairment	0	(37678142)	0	0	0
Amortization	(503470)	(531622)	(1030862)	(2570691)	(6889327)
Dividend from bottlers Nepal (Terai)	0	0	83483872	0	31306452
Profit/loss on sales of fixed assets	2860982	385302	(10070535)	9972	(28143049)
Provision for staff quarter	(1792525)	0	(17770300)	(1763464)	(13225415)
Provision for bonus	(3096180)	0	(3363570)	(3045983)	(22843898)
Profit before tax	30961802	(68712132)	30272128	30459831	228438985
Provision for tax	(5539057)	0	0	0	0
Provision for special fees	(461588)	0	0	0	0
Income tax	0	(2959078)	(2209062)	(716990)	(55025012)
Deferred tax	0	41363862	(39492081)	(9212196)	4088177
Net profit after tax	24961157	(30307348)	178483161	20530646	177502150
Balance brought forward	399912950	342592657	0	167054146	177840357
Provision fro tax in respect of earlier year	(24332000)	0	0	0	0
Depreciation exp. for earlier years	(57949450)	0	0	0	0
Dividend tax in respect of dividend from earlier years		(1376840)	0	0	0
Profit available for appropriation	342592657	310908469	167054146	187584791	355342507
Proposed dividend for the year		(224122005)		(9744435)	(7795480)
Previous years tax expenses					(10555734)
Capital reserve transfer					200000
Balance of profit transfer to B/S	342592657	86786464	167054146	177840357	268831293

Administrative Expenses

Particular	2006/07	2007/08	2008/09	2009/10	2010/11
Salaries, wages and other employee cost	35286009	46051701	66029922	72107937	80558757
Contribution to PF, gratuity	0	0	0	0	0
Rent	1381389	4485245	5397472	3632008	1828487
Repair and maintenance	4446570	3874630	3757276	5296273	7330245
Security expenses	0	0	0	0	0
Electricity, fuel and water	155645	212230	163108	178147	2191329
Training and traveling expenses	14899616	8900706	8608982	9492818	9111440
SAP related expenses	6291308	0	0	0	0
Audit fees	219615	220000	220000	220000	220000
Legal and professional fees and expenses	1131161	1251851	1640001	3232729	595636
Rates and taxes	352071	308578	280645	223526	134200
Bank charges	287786	334678	346337	225145	334538

Trade discount	56673446	49126411	30979640	32256140	50883252
General meeting expenses	52096	24822	242632	387166	558652
Insurance premium	180293	71575	102184	66439	97699
Communication	5492827	2711339	5776770	5863637	2782096
Information service charges	0	10882367	12209111	0	0
Printing and stationery	1312883	1616886	1381211	996071	1049991
Advertisement	2789767	3224720	488387	852800	428778
Sales promotion expenses	4628452	17966080	22285256	28487149	24539396
Training	0	0	0	0	0
Deposit written off	0	0	2190175	2797354	0
Charity and donation	139331	88258	312356	199871	69139
Uniform	613017	1210953	997000	645383	1320720
Rejection and breakages	1902187	2511779	1219546	1061836	2761849
Vehicle operating expenses	2316701	2044689	1626485	1257336	2789561
Obsolete stock and fixed assets written off	717221	0	16228486	1626320	21895724
Product transfer fees	6779918	179873671	25677800	38537009	73127109
Management fees	6643214	6879300	7725931	4323839	2273554
Special fees	0	0	0	0	0
Miscellaneous expenses	971262	890308	1677923	2012295	5085391
Bad dent expenses	0	0	0	28831080	959659
Total	15663785	182872777	217564636	244810308	292927203

Cost of Sales

Particular	2006/07	2007/08	2008/09	2009/10	2010/11
Opening stocks:					
Raw materials	142772596	81600664	87259400	47762161	58718366
Work-in-progress	1379482	1074612	863340	1219212	2466301
Finished goods	7465594	7133110	14401378	18874839	16822875
Production of CO ₂ gas	5877892	425936	0	0	0
Purchase during the year (net of rebate on concentrate)	224047225	369282382	351268529	541140109	806638257
Add: Transfer from Bottlers Nepal (Terai) Ltd.	0	0	0	0	0
Less: Transfer to Bottlers Nepal (Terai) Ltd.	(11166792)	(59486721)	(26942919)	(47789047)	(10278353)
Total available	370375997	400029983	426849728	561207274	874367446
Less: Closing stock:					
Raw materials	81600664	87259400	47762161	58718366	153049334
Work-in-progress	1074612	863340	1219212	2466301	2263528
Finished goods	7133110	14401378	18874839	17371311	1138288
Stock write off	0	0	0	0	0
Total	89808386	102524118	67856212	78555978	166694150
Material cost	280567611	297505865	358993516	482651296	707673296
Production expenditure	70512428	91752000	96140535	139242327	179438452
Total	351080039	389257865	455134051	621893623	887111748

Appendix-II

1. Actual and Budgeted Sales

Year	Budgeted sales (x)	Actual sales (y)	x^2	y^2	xy
2006/07	714739440	621827381	510852467091514000	386669291761319000	444444554072607000
2007/08	721827381	634189583	521034767961319000	402196427185714000	457775405754372000
2008/09	734189583	746581607	539034343785714000	557384095910702000	548132438718800000
2009/10	846581607	1002720181	716700417310702000	1005447761384670000	848884462202311000
2010/11	1102720181	1588149524	1215991797584673000	2522218910581427000	1751284530560344000
n = 5	$\Sigma x =$ 4120058192	$\Sigma y =$ 4593468276	$\Sigma x^2 =$ 3503613793733922000	$\Sigma y^2 =$ 4873916486823832000	$\Sigma xy =$ 4050521391308434000

$$1) \text{ Mean } (\bar{X}) = \frac{\Sigma x}{N}$$

$$\text{Budgeted sales } (\bar{X}) = \frac{4120058192}{5} = \text{Rs. } 824011638.4$$

$$\text{Actual sales } (\bar{Y}) = \frac{4593468276}{5} = \text{Rs. } 918693655.2$$

$$2) \text{ Standard deviation } (\sigma) = \sqrt{\frac{1}{n-1} \left(\Sigma x^2 - \frac{(\Sigma x)^2}{n} \right)}$$

$$\text{Budgeted sales } = \sqrt{\frac{1}{5-1} \left(3503613793733922000 - \frac{(4120058192)^2}{5} \right)} = 164801314$$

$$\text{Actual sales } = \sqrt{\frac{1}{5-1} \left(4873916486823832000 - \frac{(4593468276)^2}{5} \right)} = 404328556.5$$

$$3) \text{ Coefficient of variation } = \frac{\sigma}{\bar{X}} \times 100\%$$

$$\text{Budgeted sales } = \frac{164801314}{824011638} \times 100\% = 20\%$$

$$\text{Actual sales } = \frac{404328557}{918693655.2} \times 100\% = 44.01\%$$

$$4) \text{ Correlation coefficient } (r) = \frac{n \Sigma xy - \Sigma x \cdot \Sigma y}{\sqrt{[n \Sigma x^2 - (\Sigma x)^2]} \sqrt{[n \Sigma y^2 - (\Sigma y)^2]}}$$

$$5 \times 4050521391308434000 - 4120058192 \times 4593468276$$

$$\sqrt{[5 \times 3503613793733922000 - (4120058192)^2]} \sqrt{[5 \times 4873916486823832000 - (4593468276)^2]}$$

$$= 0.9959276025$$

$$5) \text{ Probable error (PE)} = 0.6745 \times \frac{1-r^2}{\sqrt{n}}$$

$$= 0.6745 \times \frac{1 - (0.9959276025)^2}{\sqrt{5}} = 0.002451838714$$

2. Actual and Budgeted Production

Year	Budgeted production (x)	Actual production (y)	x^2	y^2	xy
2006/07	416165434	350747555	173193668456408000	123023847338478000	145969008451014000
2007/08	409419080	396526713	167623983068046000	157233434122584000	162345602031884000
2008/09	446557873	459607513	199413933938284000	211239066006045000	205241353420100000
2009/10	510899897	620390096	261018704754611000	384883871214889000	316957236146220000
2010/11	668053257	881121428	446295154188308000	776374970880759000	588636039787891000
n = 5	$\Sigma x =$ 2451095541	$\Sigma y =$ 2708393305	$\Sigma x^2 =$ 124754544405657000	$\Sigma y^2 =$ 1652755189562755000	$\Sigma xy =$ 1419149239837109000

$$1) \text{ Mean } (\bar{X}) = \frac{\Sigma x}{N}$$

$$\text{Budgeted production } (\bar{X}) = \frac{2451095541}{5} = \text{Rs. } 490219108$$

$$\text{Actual production } (\bar{Y}) = \frac{2708393305}{5} = \text{Rs. } 541678661$$

$$2) \text{ Standard deviation } (\sigma) = \sqrt{\frac{1}{n-1} \left(\Sigma x^2 - \frac{(\Sigma x)^2}{n} \right)}$$

$$\text{Budgeted production } = \sqrt{\frac{1}{5-1} \left(124754544405657000 - \frac{(2451095541)^2}{5} \right)} = 107204914$$

$$\text{Actual production } = \sqrt{\frac{1}{5-1} \left(1652755189562755000 - \frac{(2708393305)^2}{5} \right)} = 215450882$$

$$3) \text{ Coefficient of variation } = \frac{\sigma}{\bar{X}} \times 100\%$$

$$\text{Budgeted sales } = \frac{107204914}{490219108} \times 100\% = 21.87\%$$

$$\text{Actual sales } = \frac{215450882}{541678661} \times 100\% = 39.78\%$$

$$4) \text{ Correlation coefficient } (r) = \frac{n \Sigma xy - \Sigma x \cdot \Sigma y}{\sqrt{[n \Sigma x^2 - (\Sigma x)^2]} \sqrt{[n \Sigma y^2 - (\Sigma y)^2]}}$$

$$\frac{5 \times 1419149239837109000 - 2451095541 \times 2708393305}{\sqrt{[5 \times 124754544405657000 - (2451095541)^2]} \sqrt{[5 \times 1652755189562755000 - (2708393305)^2]}}$$

$$= 0.9897555125$$

$$5) \text{ Probable error (PE)} = 0.6745 \times \frac{1-r^2}{\sqrt{n}}$$

$$= 0.6745 \times \frac{1 - (0.989755125)^2}{\sqrt{n}} = 0.006148750987$$

3. Net Income of Break Even Sales

Year	Net profit after tax (x)	BEP sales (y)	x ²	y ²
2006/07	24961157	551231025	623059358778649	303855642922551000
2007/08	(30307348)	793967355	918535342793104	630384160805696000
2008/09	(11429014)	679800444	130622361012196	462128643662597000
2009/10	20530644	936815424	421507343054736	877623138644300000
2010/11	177502149	1131679445	31507012899618201	1280698366235508000
n = 5	Σx = 181257588	Σy = 4093493693	Σx ² = 33600737305256886	Σy ² = 3554689952270652000

$$1) \text{ Mean } (\bar{X}) = \frac{\sum x}{N}$$

$$\text{Net profit } (\bar{X}) = \frac{181257588}{5} = \text{Rs. } 36251517.60$$

$$\text{BEP sales } (\bar{Y}) = \frac{4093493693}{5} = \text{Rs. } 818698738.60$$

$$2) \text{ Standard deviation } (\sigma) = \sqrt{\frac{1}{n-1} \left(\sum x^2 - \frac{(\sum x)^2}{n} \right)}$$

$$\text{Net profit} = \sqrt{\frac{1}{5-1} \left(33600737305256886 - \frac{(181257588)^2}{5} \right)} = 82203824$$

$$\text{BEP sales} = \sqrt{\frac{1}{5-1} \left(3554689952270652000 - \frac{(4093493693)^2}{5} \right)} = 225472742$$

$$3) \text{ Coefficient of variation} = \frac{\sigma}{\bar{X}} \times 100\%$$

$$\text{Net profit } (\bar{X}) = \frac{82203824}{36251517.60} \times 100\% = 226.76\%$$

$$\text{BEP Sales } (\bar{Y}) = \frac{225472742}{818698738.60} \times 100\% = 27.54\%$$

x_1	x_2	x_3	x_1x_2	x_2x_3	x_3x_1	x_1^2	x_2^2	x_3^2
621827381	1	7418219	621827381	7418219	4612851692454440	386669291761319000	1	55029973131961
6341895883	2	21190800	1268379166	42381600	13438984615436400	402196427185714000	4	449050004640000
746581607	3	22773643	2239744821	68320929	17002382988184300	557384095910702000	9	518638815491449
1002720181	4	29339949	4010880724	117359796	29419758971810800	1005447761384670000	16	860832607322601
1588149524	5	24968174	7940747620	124840870	39653193653249200	2522218910581427000	25	623409712894276
$\Sigma x_1 =$ 4593468276	$\Sigma x_2 =$ 15	$\Sigma x_3 =$ 105690785	$\Sigma x_1x_2 =$ 16081579712	$\Sigma x_2x_3 =$ 360321414	$\Sigma x_3x_1 =$ 104127171921135140	$\Sigma x_1^2 =$ 4873 916486823832000	$\Sigma x_2^2 =$ 55	$\Sigma x_3^2 =$ 2506961113480287

Appendix-III

Calculation dx , dx_2 , dx_3 , dx_1x_2 , dx_2x_3 , dx_3x_1 , dx_1^2 , dx_2^2 and dx_3^2 .

Appendix-V

Calculation of dx_1 , dx_2 , dx_3 , dx_1x_2 , dx_2x_3 , dx_2x_1 , dx_1^2 , dx_2^2 , dx_3^2

x_1 (in 000)	x_1 (000)	x_3 (000)	x_1x_2	x_2x_3	x_3x_1	x_1^2	x_2^2	x_3^2
30962	621827	588944	19253007574	366221280688	18234884128	958645444	386668817929	346855035136
(68712)	634190	703080	(43576463280)	445886305200	(48310032960)	4721338944	402196956100	494321486400
30272	746582	784597	22600530304	585765997454	23751320384	916393984	557384682724	615592452409
30460	1002720	997317	30542851200	1000029702240	303782575820	927811600	1005447398400	994641198489
228440	1588150	1327399	362796986000	2107108721850	303231027560	52184833600	2522220422500	1761988105201
$\Sigma x_1 =$ 251422	$\Sigma x_2 =$ 4593469	$\Sigma x_3 =$ 4401337	$\Sigma x_1x_2 =$ 391616911798	$\Sigma x_2x_3 =$ 4506012007432	$\Sigma x_3x_1 =$ 327285474932	$\Sigma x_1^2 =$ 59709023572	$\Sigma x_2^2 =$ 4873918277653	$\Sigma x_3^2 =$ 4213398277635

Appendix-IV

Trend Analysis of Advertisement and Promotional Expenses

Let x and y be the no. of time periods of advertisement and promotional expenses of BNL respectively. Then the forecasted regression equation of y on x is,

$$Y = a + bX$$

Years	No. of given period (x)	Advertisement and promotional exp. (y)	x ²	y ²	xy
2006/07	1	7418219	1	55029973131961	7418219
2007/08	2	21190800	4	449050004640000	42381600
2008/09	3	22773643	9	518638815491449	68320929
2009/10	4	29339949	16	860832607322601	117359796
2010/11	5	24968174	25	623409712894276	124840870
n = 5	Σx = 15	Σy = 105690785	Σx ² = 55	Σy ² = 2506961113480287	Σxy = 360321414

$$b = \frac{n \sum xy - \sum x \cdot \sum y}{n \sum x^2 - (\sum x)^2} = \frac{5 \times 360321414 - 15 \times 105690785}{5 \times 55 - (15)^2} = \frac{216245295}{275 - 225} = 4324905.90$$

$$a = \frac{\sum y}{n} - b \frac{\sum x}{n} = \frac{105690785}{5} - (4324905.90 \times 15/5) = 8153439.30$$

Forecasting of advertisement and promotional expenses:

Fiscal year	y = 8163439.30 + 4324905.3x	Advertisement and promotional expenses
2011/12	Y ₆ = 8163439.30 + 4324905.3 X 6	34112871.1
2012/13	Y ₇ = 8163439.30 + 4324905.3 X 7	38437776.40
2013/14	Y ₈ = 8163439.30 + 4324905.3 X 8	42762681.70
2014/15	Y ₉ = 8163439.30 + 4324905.3 X 9	47087587
2015/16	y ₁₀ = 8163439.30 + 4324905.3 X 10	51412492.30

Appendix-V

Bottlers Nepal Limited: A Brief Profile

1) An Overview of Company

BNL is one of the manufacturing and processing companies. It is established in 1979 AD under the company Act 1964 A.D. It is initially started as a private enterprise in 1985 by issuing shares to public. It was established with the objective of producing and bottling soft drinks under the brand name of Coca Cola Sabco Asia Ltd. The company also makes and sales soft drinks under the registered trademarks of Coca Cola managed by Dubai based Coca Cola Sabco Asia Ltd. The company is located at Balaju, Kathmandu; in an area covering 10.648 square meters of land and the buildings of the company covers 5,828 squares meters. The company has been launching various types of promotional activities with financial and technical support from the Coca cola Sabco Asia Ltd. Dubai (*BNL Annual Report 2003/04:21*).

2) Share Capital of BNL

The BNL was started with an authorized capital of Rs. 30,250,000. In the initial period, its paid up capital was Rs.10, 500,000 of Rs.100 per share. Now the company has authorized capital of Rs.430,000,000, issued capital of Rs.370,000,000 and paid up capital of Rs.194,889,000 (*BNL Audit Report: 2005/06:11*).

3) Subsidiary Company of BNL

Bottlers Nepal (Tarai) Ltd. is operated as a subsidiary company of BNL, Balaju. BNL (Tarai) Ltd. was established in 1986 under the company Act, 1964 with the object of producing and bottling soft drinks under the brand name of Coke, Fanta and Sprite. The company is situated in Chitwan district. It is managed by Coca-Cola Sabco Asia Ltd., Dubai. The installed capacity of plant is 350 bottling per minute. BNTL belongs to 92% (nearly) of equity shares to holding company BNL, Balaju. The company has increased investment on the subsidiary company by acquiring additional shares from open market. The company's equity interest has increased to 91.78% after the new acquisition of shares in BNTL (*BNL Audit Report 2005/06:12*).

4) Product Line

BNL produces Coke, Fanta and Sprite in returnable glass bottle as well as non-returnable bottles. Upgrading the product lines, the company has already upgraded its 430 bottles per minute line to produce 175ml. package in returnable glass bottle. Considering the market demand, the company has also invested in pet line to produce 1.5 liter packages in non returnable bottles. The lines have commenced production and they have started sales of locally manufactured pet since the previous year. So, the company has been able to increase the production efficiency of the plant giving better outputs as compared to the previous year. The company is able to fulfill the market

demand without any production constraints after the installation of new plant (*BNL Audit Report 2005/06:13*).

5) Profit Position

BNL is one of the top ten companies listed on the NEPSE in terms of market capitalization. The company produces soft drink named Coca-Cola, Fanta Orange, Fanta Lemon and Sprite. Despite several market competition and disturbances in the market due to the external factors, the company has been able to increase sales volume by 3.68% compared to previous year. However, the profit after tax of the company has increased by 11.48% (*BNL Audit Report 2005/06:14*).

6) Distribution Policy

The company does not have direct distribution to the consumer. The strategic long term plan is used in the company. As mentioned above, the company uses two types of distribution channel i.e. through the dealer and retailer to consumer. Since the company doesn't sell the products by itself but it uses some kinds of commission system. But, it does not offer any kind of discounts and incentives. The company provides 8% commission on sales price is given to distributor whereas nearly 13.30% commission on sale is provided for retailer. In order to stay ahead of the competition, the company had launched several programs with financial and technical support from the Coca-Cola Company. The objectives of those programs are to increase the per capital consumption of its beverages in the market. This company will continue to promote all its products as before.