

Cashew Nut Shell Liquid and Kernel Export Performance of India

K. Santhi¹ and K. Maran²

¹Research Scholar, Bharathiyar University, Coimbatore. Assistant Professor,
School of Hotel Management, SRM University,
Katankulathur, Chennai. Tamil nadu, India.

²Research Supervisor, Bharathiyar University, Coimbatore.
Prof. and Director, Sri Sairam Institute of Management Studies,
Sri Sairam Engineering College, Chennai, Tamil nadu, India

Abstract

The export of cashew nuts related products such as Cashew nut Shell liquid and Kernel offers direct and indirect employment to more than 5 Lakh people in the country. In order to promote export of Cashew products Government of India set up "The Cashew Export Promotion Council of India" in 1955. The key objective of this research is to investigate the trade or export performance of cashew nut shell liquid and kernel from India during the period of 2008 to 2017 (10 years). The export performance was analyzed using trend analysis with the help of tables and charts. From the analysis, it is found that the export performance of India with regards to Cashew Nut Shell Liquid and Kernel during the research period was unstable, because of the demand and supply in the international market and price fluctuations. The India needs to prepare to compete with emerging African markets through promotion of Cashew cultivation, developing Cashew Nut Processing zones, and promote the export of Cashew products to existing and potential markets.

Keywords: *Cashew Nuts exports, Cashew Kernel, Cashew nuts Shell liquid, The Cashew export promotion council of India.*

1. Introduction

The Indian Cashew industry in India plays a major role in growth and development of economy particular by offering more than five lakh job opportunity directly and indirectly, in the rural areas. In the world market India faces competition from countries like Vietnam and Brazil with regards to exports of Cashew Kernels. The NPC for the period 2004 under exportable hypothesis was 0.98, which also discovered that the local prices earned by the Indian farmers very less than the global prices, which also inferred that the local farmers were dis-protected or slightly taxed related

to a condition normal under free trade condition. With regards to the probability 70.49% was acquired by exporting to USA as it is the most stable nation for importing the cashew for India and also it has retained its earlier share of export to Singapore. The prime goal of this paper is to analyze the export performance of cashew nut shell liquid and kernel from India to other countries during the research period from 2008 to 2017.

2. Cashew Kernel

Cashew kernels are acquired by processing (boiling / roasting, shelling and peeling) of raw cashew nuts. It is for marketable reasons, they are categorized based on their size, colour and shape and the status particulars are given under the title called Commercial Information. Cashew kernels are also offered as cooked, salty, flavored and glazed with spices and honey. Moreover in the open market value added products such as cashew powder, butter and drink are also found.

3. Cashew nut Shell Liquid (CNSL)

The by- product that we get from cashew industry is Cashew nut shell liquid. The cashew nut contains in a shell which is about 1/8 inch thickness from inside comprising a dark reddish brown viscous liquid which is soft like a honeycomb structure hence it is termed as cashew nut shell liquid, which is the pericarp liquid of the cashew nut. Whereas Cashew nut Shell Liquid is a by-product obtained while processing raw cashew nuts to produce cashew kernels. It is the oil obtained by crushing the cashew shell. Cashew nut Shell Liquid CNSL is a versatile industrial oil with its applications in the manufacture of brake linings, friction dust, resins, paint and laquer, etc. Purified and distilled CNSL is called Cardanol.

4. The Cashew Export Promotion Council of India

The CEPC was formed by the Indian Government in 1955, with the full support from industry that produce cashew. The main goal of Indian government behind formation of this council was to promote the export of cashew nut shell liquid and cashew kernels to the outside world for a better price.

With the formation of the Council delivers the essential institutional frame-work for execution of the different tasks that help to strengthen and encourage exporters of cashew kernels and cashew nut shell liquid. Moreover the Council delivers the required connection for getting together foreign buyer with the cashew kernels exporters form India. The various trade enquiries received from the foreign buyer are circulated between members of the Council. The Council also encompasses its support in terms of good offices in resolving grievances harmoniously in the matter of exports/imports whichever means of grievances such as account or difference in satisfaction of prescribed responsibilities.

5. Literature Review

Elijah et al. (2018), in their research studied the performance assessment of an established cashew nut shell liquid expeller. The dense vesicant oil liquid confined in the shell of cashew nut, is known as cashew nut shell liquid (CNSL), has been recognized for its countless usage in chemical industries. Performance assessment of an afresh established CNSL expeller which was carried out to establish the effect of moisture content and pressing period on extraction parameters. Analysis of variance were used as a statistical analysis in this research. The best mass of liquid mined, finest extraction effectiveness and finest percentage oil recovery happened at pressing time of 10 minutes and moisture content of 14.00-16.99% (w.b.), while the finest machine capability was at pressing time of 2 minutes and moisture content of 14.00-16.99% (w.b.). Meanwhile, the effects of the pressing time and moisture insides were not important for the feed price. Rise in the pressing time at declining the moisture content caused in the rise in the mass of liquid mined, extraction effectiveness and percentage liquid recovery while rise in pressing time and moisture content caused in decline in machine capability of the expeller.

Elakkiya et al. (2017), accessed the growth and performance of cashew nut production in India from 1965-66 to 2014-15. For this study statistics tools like descriptive statistics and percentage analysis use for interpret data. The results indicate that increasing trend in production of cashew nut in India.

Sakthi Kumar and Gunaseela Prabu (2017), examined the problems faced by cashew exporters from Tamilnadu and to suggest suitable recommendation for improving the performance of the industry. The central Govt. should adopt certain measure for reducing the major problems and encouraging exporters. Then only the cashew exporters to reach their target in future export of India. Keywords: Commercial production, climatic conditions and cashew exporters.

Aravinda kumar et al. (2015), in their study examined export performance of Indian cashew. India is the major producer of cashew nut in the global market which has accounted to nearly 39.47% of global cashew production in the year 2010. Whereas India has the biggest area allocated for harvesting of the raw cashew nuts in the worldwide. While the production increased by 4.51 per cent per annum. The production improved by 4.51 % per annum and the cashew had registered a progress rate of 2.46 %. The harvest recorded a compound growth rate of 1.79% per annum with respect to the period of research. Henceforth the growth rates were statistically important at 1 % level of probability. The difference in the area is 3.84% and production 6.29% and 8.09% with regards to productivity while the outcome on inconsistency in export discovered that in quantity terms it was 7.64 %, in value terms it is 12.23 % and in terms of unit worth it calculated out to be 14.23 %, which is the maximum. With introduction of new High Yielding Varieties of cashew which could progress the productivity and export of cashew kernel. Therefore it is healthier to focus on shipping new of value added products to achieve more and more profit and it confirms a good rate to farmers by growing competition in local market.

Guledgudda et al. (2014), in their research studied export performance of Indian cashew nut- An analysis. The Indian Cashew industry in India plays a major role in growth and development of economy particular by offering more than five lakh job opportunity directly and indirectly, in the rural areas. In the modern world Cashew nuts are an important part of natural diet in various countries. It is found that 95% of the workers involved in Cashew nuts are female labour. The over-all export incomes that earned from the export of cashew kernel and cashew nut shell liquid has tremendous increased from 447.80 crores in 1990-91 to 4390.68 crores in 2011-12. In the world market India faces competition from countries like Vietnam and Brazil with regards to exports of Cashew Kernels. The NPC for the period 2004 under exportable hypothesis was 0.98, which also discovered that the local prices earned by the Indian farmers very less than the global prices, which also inferred that the local farmers were dis-

protected or slightly taxed related to a condition normal under free trade condition. With regards to the probability 70.49% was acquired by exporting to USA as it is the most stable nation for importing the cashew for India and also it has retained its earlier share of export to Singapore. Vietnam, Indonesia, Brazil and Tanzania are the key competitors for India in the global market. While reliance on one or two export market could certainly rise the risk of trade in the nearby future. Henceforth it is suitable that export promotion plans are to be changed to differentiate the geographical attention.

Omer Jan et al. (2014), analyzed the export development outline of cashew on India. From 1994 to 2013 a period of twenty years was considered for the research. With the accessibility of data the present status and the Compound Annual Growth Rate of the exporters of cashew were analyzed. Whereas the outcome of the analysis established that Southern India is the key producer of cashew nuts in the country. The analysis also displayed that that state of Karnataka covers an area of 2.89%, while the production is about 4.13% and the productivity is 1.11% with regards to the annual growth rate. The amount of cashew kernels traded has made an gradually increase with respect the annual growth rate of 4.06% per annum and where it is found that the 7.25% was the annual growth rate of export.

Mwangi et al. (2013), in their paper highlighted a number of products which can be manufactured in Kenya based on research initially done at Kenya Industrial Research and Development Institute and more recently at Jomo Kenyatta University of Agriculture and Technology Recovery of CNSL and its exploitation in Kenya will not only enhance the economic returns to the cashew industry but also contribute significantly to conservation of the environment. It is recommended that further work be done to scale-up production of CNSL based products and demonstrate feasibility of the same. Production and local processing of the cashew nuts accompanied by recovery of CNSL should be enhanced.

6. Research Methodology

The study followed analytical and quantitative research design. The data necessary for the research was gathered through the online resources of Cashew Export Promotion Council of India. The period of the study was from 2008 to 2017 (10 Years). The data was analyzed through trend analysis. In this research export performance of Cashew Nut Shell liquid (CNSL) from India to foreign countries such as USA, Korea Republic, Japan, and Others. This study also analyzed the export performance of trend of Cashew Kernel

from India to foreign countries such as USA, Netherland, UAE, Japan, UK, France, and others.

7. Results & Discussion

The section of the research paper discusses the results of the discussion and draw appropriate inferences.

The export quantity of Cashew Nut Shell Liquid from India to other countries are shown in table 1 and the trend of export to various countries are shown in chart 1. From the table and chart 1 it is found that export of Cashew Nut Shell Liquid (CNSL) to USA has recorded the fluctuation in the period from 2008 to 2012, whereas from the year 2014 to 2016 decreased trend, and had a slight increase in the year 2017. In the year 2016 it has recorded the export of lowest quantity of 389 MTs, whereas in the year 2012 it has recorded highest export of 8011 MTs.

In case of export quantity of Cashew Nut Shell Liquid from India to Korean Republic, it has recorded gradual increasing trend from 2008 to 2011, whereas in the year 2012 it has dropped to 1274 MTs, however after 2012 it has recorded rapid increasing trend from 2014 to 2017 (i.e. from 1915 MTs to 8095 MTs). In the year 2008 it has recorded the export of lowest quantity of 1010 MTs, whereas in the year 2017 it has recorded highest export quantity of 8095 MTs.

While compared to export of CNSL to other countries such as USA, Korea Republic, the export quantity to Japan is very less, and it has the increasing trend from 2008 to 2019, then there is a slight drop in export in the year 2010, after that it had an increasing trend in next two consecutive years, then it dropped down to 88 MTs in the year 2017. In the year 2017 it has recorded the export of lowest quantity of 88 MTs, whereas in the year 2012 it has recorded highest export of 771 MTs.

Table 1. Country wise Export quantity of Cashew Nut Shell Liquid from India (Based on the Quantity of Exports)

Year	USA	Korea rep	Japan	Others	Total
	Qty (in MTs)	Qty (in MTs)	Qty (in MTs)	Qty (in MTs)	Qty (in MTs)
2008	5512.00	1010.00	206.00	1085.00	7813.00
2009	5932.00	1048.00	337.00	1782.00	9099.00
2010	4827.00	1368.00	322.00	3231.00	9748.00
2011	5374.00	1697.00	712.00	4268.00	12051.00
2012	8011.00	1274.00	771.00	3519.00	13575.00
2013	5021.00	1740.00	421.00	2010.00	9192.00
2014	2987.00	1915.00	341.00	4237.00	9480.00
2015	1622.00	4695.00	261.00	4360.00	10938.00
2016	389.00	7748.00	267.00	3273.00	11677.00
2017	478.00	8095.00	88.00	2761.00	11422.00

(Source: The Cashew Export Promotion Council of India)

Chart 1. Nation wise Cashew Nut Shell Liquid Export from India (Based on the Quantity of Exports)

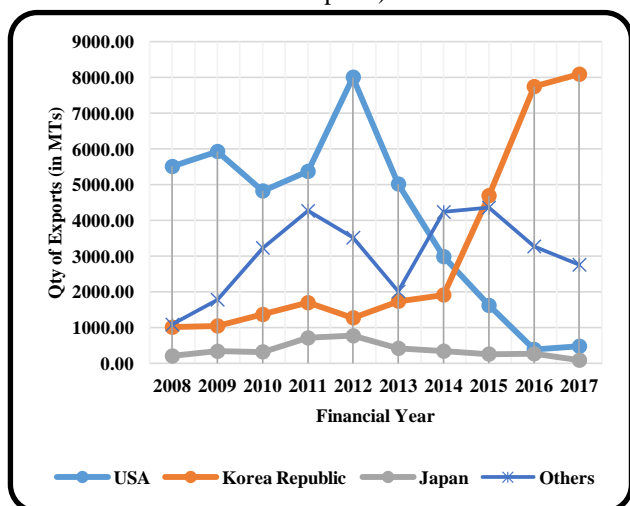
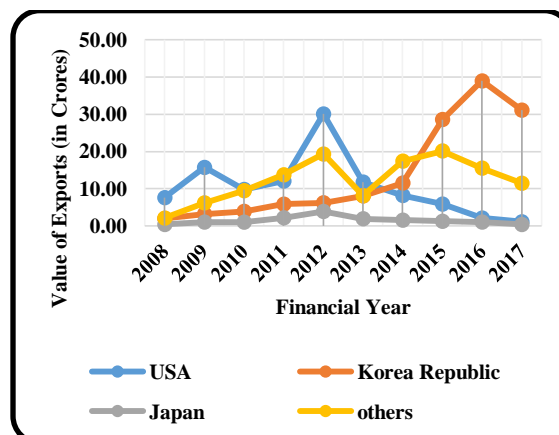


Chart 2. Nation wise Cashew Nut Shell Liquid Export from India (Based on the value of Exports)



The export of CNSL to all other countries has shown increasing trend from 1085 MTs to 4268 MTs in the year 2008 to 2011, then it has recorded the fluctuating trend from the year 2013 to 2017.

Table 2. Nation wise value of Cashew Nut Shell Liquid Export from India (Based on the value of Exports)

Year	USA (in Crores)	Korea rep (in Crores)	Japan (in Crores)	Others (in Crores)	Total (in Crores)
2008	7.58	1.96	0.36	2.08	11.98
2009	15.71	3.17	1.01	6.17	26.06
2010	9.79	3.89	0.99	9.45	24.12
2011	12.05	5.83	2.16	13.73	33.77
2012	30.09	6.20	3.87	19.30	59.46
2013	11.77	8.06	1.90	8.11	29.84
2014	8.17	11.52	1.52	17.40	38.61
2015	5.85	28.60	1.22	20.14	55.81
2016	2.09	38.97	1.01	15.52	57.59
2017	1.08	31.12	0.35	11.45	44.00

(Source: The Cashew Export Promotion Council of India)

The export value of Cashew Nut Shell Liquid from India to other countries are shown in table 2 and the trend of export to various countries are shown in chart 2. From the table and chart 2 it is found that export value of Cashew Nut Shell Liquid (CNSL) to USA has recorded the fluctuation in the period from 2008 to 2012, whereas from the year 2012 to 2017 decreased trend. It has recorded the export of lowest value of 1.08 Crores in the year 2017, whereas in the year 2012 it has recorded highest export value of 30.09 Crores.

In case of export value of Cashew Nut Shell Liquid from India to Korean Republic, it has recorded gradual increasing trend from 2008 to 2016, whereas in the year 2017 it has dropped to 31.12 Crores, however after 2012 it has recorded rapid increasing trend from 2012 to 2016 (i.e. from 6.20 Crores to 38.97 Crores). In the year 2008 it has recorded the export of lowest value of 1.96 Crores, whereas in the year 2016 it has recorded highest export value of 38.97 Crores.

While compared to export value of CNSL to other countries such as USA, Korea Republic, the export value to Japan is very less, and it has the increasing trend from 2008 to 2012 (i.e. from 0.36 crores to 3.87 Crores), then there is a slight decrease in export in the year 2010 (i.e. 0.99 Crores), after that it had an decreasing trend till the end of the research period and dropped down 0.35 Crores in the year 2017. In the year 2017 it has recorded the export of lowest value of 0.35 Crores, whereas in the year 2012 it has recorded highest export value of 3.87 Crores.

The export of CNSL to all other countries has shown increasing trend from 2.08 Crores to 19.30 Crores in the year 2008 to 2012, then it has recorded the unstable trend from the year 2013 to 2017. In the year 2008 it has recorded the lowest export value of 2.08 Crores, whereas in the year

2015 it has recorded highest export value of 20.14 Crores.

Table 3. Nation wise Cashew Kernel Export from India (Based on Quantity of Exports)

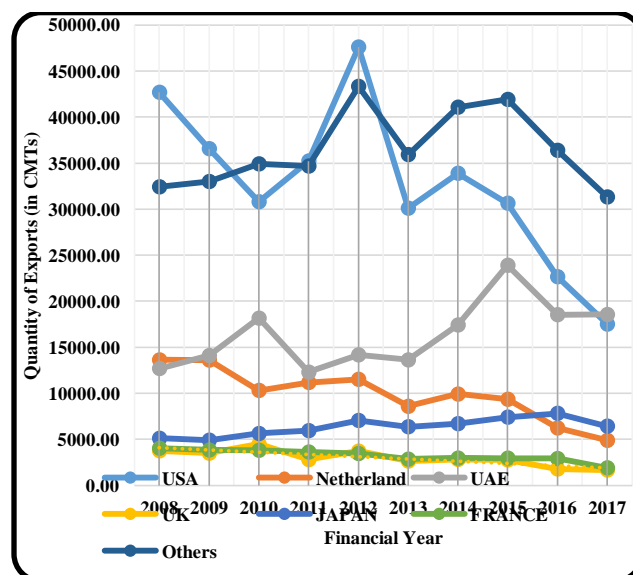
Year	USA	Netherland	UAE	UK	Japan	France	Others	Total
	Qty (in MT)	Qty (in MT)	Qty (in MT)	Qty (in MT)	Qty (in MT)	Qty (in MT)	Qty (in MT)	Qty (in MT)
2008	42694.00	13627.00	12692.00	3758.00	5114.00	4033.00	32422.00	114340.00
2009	36565.00	13608.00	14100.00	3495.00	4908.00	3843.00	33003.00	109522.00
2010	30804.00	10314.00	18161.00	4477.00	5633.00	3814.00	34917.00	108120.00
2011	35236.00	11178.00	12295.00	2798.00	5944.00	3623.00	34681.00	105755.00
2012	47611.00	11517.00	14173.00	3717.00	7054.00	3461.00	43336.00	130869.00
2013	30106.00	8589.00	13625.00	2642.00	6370.00	2847.00	35926.00	100105.00
2014	33898.00	9918.00	17421.00	2813.00	6702.00	2963.00	41076.00	114791.00
2015	30643.00	9349.00	23904.00	2766.00	7413.00	2958.00	41919.00	118952.00
2016	22661.00	6236.00	18537.00	1780.00	7826.00	2916.00	36390.00	96346.00
2017	17515.00	4891.00	18556.00	1674.00	6434.00	1907.00	31325.00	82302.00

The export quantity of Cashew Kernel from India to countries such as USA, Netherland, UAE, UK, Japan, France and other countries are shown in table 2 and the trend of export quantity to various countries are shown in chart 2. From the table and chart 2 it is determined that export quantity of Cashew Kernel USA has recorded inconsistent during the research period from 2008 to 2014, whereas from the year 2014 to 2017 it had decreased trend from 33898 MTs to 17515.00 MTs. In the year 2016 it has recorded the lowest export quantity of 17515 MTs, whereas in the year 2012 it has recorded highest export quantity of 47611 MTs.

In case of export quantity of Cashew Kernel from India to Netherland, it has recorded decreasing trend from 2008 to 2010, whereas in the next two consecutive years it has increased from 10314 MTs to 11517 MTs then it is decreased to 8589 MTs in the year 2013, whereas in the year 2014 it has reached 9918 MTs, however in the period 2014 to 2017 the export to Netherlands has dropped in the consecutive years. In the year 2017 it has recorded the lowest export of lowest quantity of 4891 MTs, whereas in the year 2008 it has recorded highest export quantity of 13627 MTs.

In case of export quantity of Cashew Kernel to UAE from India during the research period 2008 to 2017. The lowest quantity of export was in the year 2010 (i.e. 12295 MTs), whereas highest quantity of export was happened in the year 2015 (i.e. 23904 MTs)

Chart 3. Nation wise Cashew Kernel Export from India (Based on Quantity of Exports)



While compared to export of Cashew Kernel to USA, Netherland, and UAE the export quantity to UK is less. It has recorded the inconsistent in export during the research period of 2008 to 2014, after the year 2014 it had shown consistent drop in the export quantity from 2813 MTs to 1674 MTs. In the year 2017 it has recorded the lowest export quantity of 1674 MTs, whereas in the year 2012 it has recorded highest export of 3717 MTs.

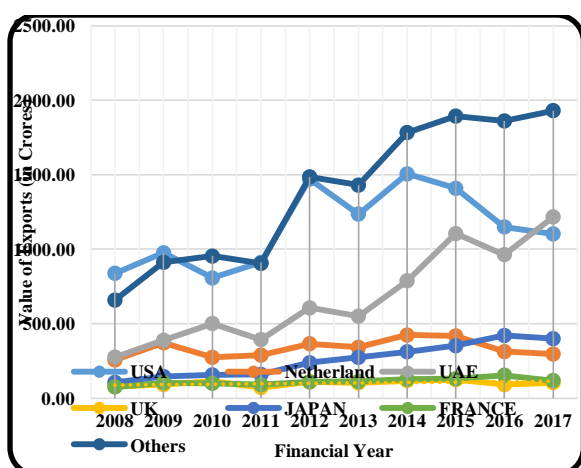
The export of Cashew Kernel to Japan also recorded the fluctuation trend during the research period whereas in the year 2009 it has recorded the lowest quantity of export of 4908 MTs, whereas in the year 2016 it has recorded the highest export quantity of 7826 MTs.

The export of Cashew kernel to France almost recorded the decreasing trend during the research period, the export quantity was 4033 MTs in the year 2008, and ends with 1907 MTs in the year 2017. The export of Cashew Kernel to all other countries other than above-mentioned countries also shown in fluctuating trend during the research period.

Table 4. Nation wise Cashew Kernel Export from India (Based on the value of exports)

Year	USA	Netherland	UAE	UK	Japan	France	Others	Total
	(in Crores)	(in Crores)	(in Crores)	(in Crores)	(in Crores)	(in Crores)	(in Crores)	(in Crores)
2008	838.35	256.27	275.68	78.39	106.52	75.51	658.18	2288.90
2009	975.69	371.48	388.86	91.21	145.16	104.10	911.90	2988.40
2010	806.63	273.99	501.65	114.18	156.21	99.70	953.46	2905.82
2011	911.31	289.02	393.31	71.76	159.16	90.12	904.71	2819.39
2012	1470.47	365.57	606.11	109.45	237.45	109.10	1485.67	4383.82
2013	1236.17	341.24	550.18	102.47	274.10	112.00	1430.07	4046.23
2014	1505.73	423.60	788.20	118.47	311.62	127.78	1783.33	5058.73
2015	1408.85	417.90	1104.86	124.76	351.94	131.02	1893.52	5432.85
2016	1149.53	312.39	963.55	90.59	420.76	154.37	1860.93	4952.12
2017	1102.90	296.27	1216.70	104.41	399.41	118.63	1930.46	5168.78

Chart 4. Nation wise Cashew Nut Shell Liquid Export from India (Based on the value of exports)



The export value of Cashew Kernel from India to countries such as USA, Netherland, UAE, UK, Japan, France and other countries are shown in table 4 and the trend of export quantity to various countries are shown in chart 4. From the table and chart 4 it is identified that export value of Cashew Kernel USA has recorded inconsistent during the research period from 2008 to 2014, whereas from the year 2014 to 2017 it had decreased trend from 1505.73 Crores to 1102.90 Crores. In the year 2008 it has recorded the lowest export value of 838.35 Crores, whereas in the year 2014 it has recorded highest export value of 1505.73 Crores.

In case of export value of Cashew Kernel from India to Netherland, it has recorded fluctuation during the research period. In the year 2008, it has recorded the lowest export value of 256.27 Crores, whereas in the year 2014 it has recorded highest export value of 423.60 Crores.

In case of export value of Cashew Kernel to UAE from India from the year 2008 to 2010, it has recorded the increasing trend from 275.68 Crores to 501.65 Crores. The lowest value of export was in the year 2008 (i.e. 275.68 Crores), whereas highest value of export was happened in the year 2017 (i.e. 1216 Crores).

While compared to export of Cashew Kernel to USA, Netherland, and UAE the export value to UK is very less. It has recorded the inconsistent in export during the research period from 2008 to 2017. In the year 2011 it has recorded the lowest export value of 71.76 Crores, whereas in the year 2015 it has recorded highest export value of 124.76 Crores.

The export value of Cashew Kernel to Japan has recorded the increasing trend from 2008 to 2016 and dropped in the year 2017. It has recorded the lowest export value of 106 Crores, whereas in the year 2016 it has recorded the highest export value of 420.76 Crores.

The export of Cashew kernel to France recorded the fluctuation trend during the research period. It has recorded the lowest export value of 75.51 Crores, whereas in the year 2016 it has recorded the highest export value of 154.37 Crores. The export of Cashew Kernel to all other countries other than above-mentioned countries also shown in fluctuating trend during the research period.

Chart 5. Total export quantity of CNSL and Cashew Kernel

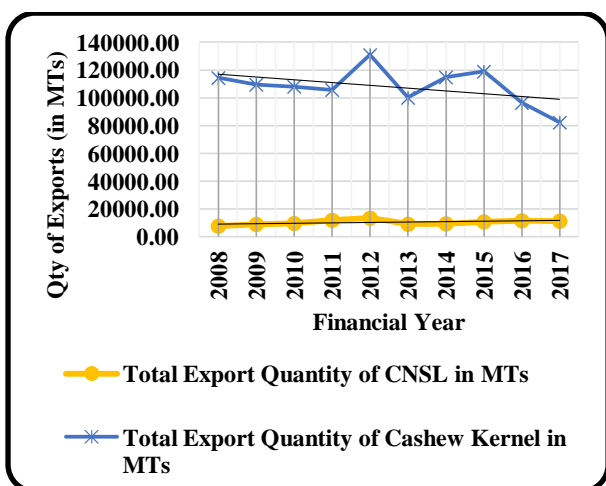


Chart 5 portrays the total export quantity of CNSL and Cashew Kernel from India to other countries during the research period of 2008 to 2017.

Chart 6. Total export value of CNSL and Cashew Kernel

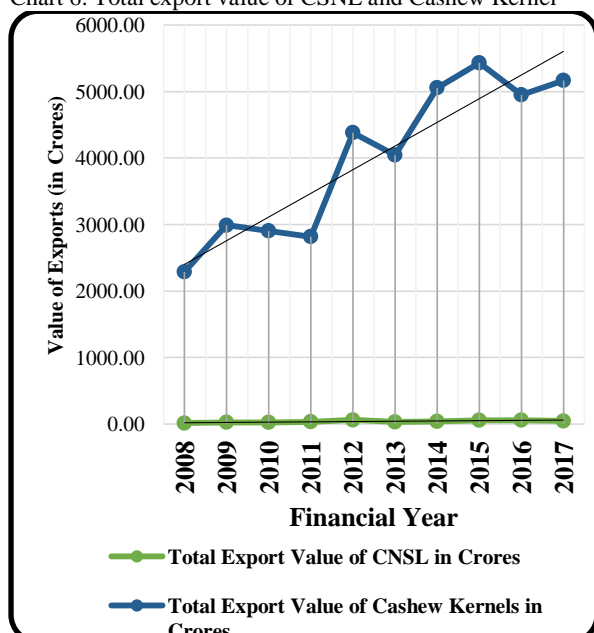


Chart 6 portrays the total export value of CNSL and Cashew Kernel from India to other countries during the research period of 2008 to 2017.

8. Conclusion

The results of the analysis indicates that the export quantity of cashew nut shell liquid to USA dropped in rapid pace, whereas it has increased rapidly and touched the highest quantity in case of Korea Republic, whereas export of CNSL to Japan has recorded fluctuating trend during the research

period, and the export of CNSL to other countries recorded small fluctuation during the research period. The value of export of CNSL also almost similar trend, however there are some variations due to money exchange rates during the export period. The export of Cashew Kernel to USA also faced rapid fall after the year 2012, whereas it was managed by increasing the export of Cashew Kernel to UAE, whereas the export of cashew kernel to Netherland had gradual decrease during the research period. The export of cashew kernel to France and United Kingdom has recorded only slight fluctuations during the research period. Based on the above analysis, it is concluded that the export performance of India with regards to Cashew Nut Shell Liquid and Kernel during the research period was unstable, because of the demand and supply in the international market and price fluctuations. The India needs to prepare to compete with emerging African markets through promotion of Cashew cultivation, developing Cashew Nut Processing zones, and promote the export of Cashew products to existing and potential markets.

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