

## **Does aid work? Case of Japanese ODA to Sri Lanka**

N. S. Cooray<sup>1</sup>

International University of Japan

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### **1. Introduction**

Japanese official development assistance (ODA) to Sri Lanka has grown through the past half a century. Currently, Sri Lanka is a priority aid recipient country in Southwest Asia, and receives assistance in many forms, including grant aid, technical co-operation and loans. Japanese co-operation programmes to Sri Lanka commenced in 1954 and since then has accounted for more than 25 per cent of Sri Lanka's total aid receipts. During the last four decades or so Japanese ODA has counted for 4.8 per cent of government revenue, about 10 per cent of government total expenditure, 9 per cent of total budget deficit, 4 per cent of gross capital formation and about 1 per cent of GDP. Along with economic co-operation, Japan has been providing cultural aid to Sri Lanka since 1979. Moreover, Japanese development assistance has contributed to the advancement of key physical and social infrastructure. The Government of Sri Lanka will continuously seek Japanese support for reconstruction of the war-affected north and east. It is, however, argued that Sri Lanka as an aid recipient country, has not used its aid effectively. One can ask whether aid has ultimately contributed to the country's development or not. No need to mention that under-utilisation of aid is common in the country and improvements can be made in aid utilisation from the current 60 per cent. The under utilisation can be attributed to the relatively slow decision-making and procurement process and low implementing capacity<sup>2</sup>.

Japan as the major donor and also, Sri Lanka as a priority recipient country are seeking to improve the usefulness of aid programmes and aid policies. Donor countries in general over the past two decades have grown increasingly disillusioned with foreign assistance as domestic problems gained priority over international politics (Todaro and Smith, 2003: p. 660). The Japanese economy has been stagnating after the collapse of the bubble at the end of the 1980s. Disinflation, high

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<sup>2</sup> The World Bank country representative to Sri Lanka made these points (see Daily News: 18 October 2002).

unemployment, and a huge government deficit are some of the problems Japan is currently faces with. This led to a weariness with the aid (or aid weariness) situation and the Japanese public seeks increased transparency and accountability in governing aid programmes. In Sri Lanka too, the public is concerned about the effective use of any financial inflow. In this regards, both countries have completed several evaluations from time to time. However, to the author's knowledge no single evaluation has used quantitative tools in assessing the contribution of aid to the economic development of Sri Lanka. An attempt will be made in this paper to quantify the effectiveness of Japanese aid to Sri Lanka, particularly at the macro level, through the use of econometric analysis.

The paper is organised as follows. After the introduction, section 2 discusses the nature of Japanese foreign assistance in general, and to Sri Lanka in particular while section 3 provides an assessment of the impacts of Japanese ODA on Sri Lanka's development. Investigation of the results and concluding remarks are made available in the final section.

## **2. An overview of Japanese ODA in general, and ODA to Sri Lanka in particular**

Developed countries make assistance available to developing countries out of economic self-interest, political strategic and humanitarian grounds that include trade openness, democracy, civil liberties, colonial status, direct foreign investment, initial income and population (Alesina and Dollar, 1998: p. 1; Todaro and Smith, 2003: p.653)<sup>3</sup>. Japan has been making ODA contributions to more than 150 developing countries since the early 1960's with its contemporary war reparations programme with a view to achieve two goals. The first goal is survival and prosperity, reflecting the economic aspect of its aid policy. This is what some writers described as economic nationalism (Hasegawa, 1975: p. 3; Ozawa, 1989: pp. 95; and Tisch and Wallace 1994, p. 6)<sup>4</sup>. According to the most recent ODA policy report published by the Ministry of Foreign Affairs of Japan, the country has relied heavily on the use of foreign resources and markets. Therefore, "coexistence with the world, and in particular, with Asia, has been an essential requirement for Japan's survival and prosperity" (MOFA, 2002)<sup>5</sup>. This objective is very obvious as Japan directs most of its aid to neighbouring Asian countries where it has considerable trade and investment (recycling the surplus). The second goal is to acquire and maintain the social and political trust of the world community. Japan has kept pace with the other developed nations and admitted itself to the Development Assistance Committee (DAC) in 1961

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<sup>3</sup> The US, Japan, France and Germany cover about 70 per cent of total world aid.

<sup>4</sup> Hasegawa divided Japanese aid programme into five groups that characterise Japanese aid as a manifestation of (1) Japanese nationalism, (2) non-ideological economic expansionism, (3) ideological expansionism, (4) self-preservationism, and (5) world communalism.

<sup>5</sup> The Final Report of the Second Consultative Committee on ODA Reform of Japanese Government is available at <http://www.mofa.go.jp/policy/oda/reform/report0203.html>. Accessed data is 05 February 2003.

as a founding member as well as with the Organisation of Economic Co-operation and Development (OECD) in 1964. This admittance has made them shoulder many responsibilities but still permits them to set their own aid levels (Rix, 1980: p. 28). Moreover, there are five main rationales for Japan's assistance programme i.e. (1) perceived international obligation as a rich nation to provide aid, (2) as the world's greatest creditor nation, (3) as a country economically dependent on the less developed countries, (4) as a peace-loving nation, and (5) as the only advanced non-western nation (Rix, 1993: p. 14).

For whatever the reasons mentioned above, Japan is one of the largest donor countries in the world. Therefore, it is worth taking a brief look at how Japanese aid policies have evolved over the past five decades. The rapid economic development depicted in the early 1960s increased Japanese foreign aid expenditure levels. By 1978, ODA flow doubled from the 1977 level to US\$1.4 billion. In 1980 the level reached the highest US\$3.3 billion. Then Japan initiated their second medium term target and double the ODA levels US\$21.4 billion by 1985: in dollar terms it achieved only 85 per cent by the target date, although the plan was successful in yen terms. In 1985 the government revealed its intention to double its 1985 ODA level to US\$7.6 billion by 1992. It provided US\$15.3 billion in 1999 (0.35 per cent of GNP), perhaps the highest amount among all industrial countries. This is above the average of 0.29 per cent for all industrial countries, though it is well below the internationally agreed United Nations target of 0.7 per cent. In 2000, the government disbursed US\$9.64 billion of which 54.8 per cent went to Asia. The following section provides information about regional distribution.

### **Geographical distribution of Japanese aid**

The second diplomacy report of 1958 emphasised the importance of economic prosperity of Asia as a necessary condition for the political and economic stability of Japan and her assistance has traditionally been focused on the Asian region (*ibid.* p. 22). As mentioned above, the share of ODA to Asia in 2000 was 54.8 per cent of total bilateral ODA – a decline from 63.2 per cent in 1999. The high priority to Asia may remain unchanged for several years given highly diverse levels of income, progress made toward market-oriented economics, the social situation, and the natural environmental conditions found among these countries. Also, since the collapse of the Soviet Union, the transition countries in Central Asia that took 2.2 per cent of Japanese ODA have pursued democratisation and the establishment of market economies. Japan, together with other DAC countries, have added responsibilities in serving these countries in addressing political and economic instability caused by vulnerable economic structures, growing unemployment and social instability, ethnic conflicts, and territorial disputes.

Africa ranks second in line, receiving 10.1 per cent of Japanese ODA in 2000. Favourable developments have been witnessed in Africa as a whole during recent years; that notwithstanding, numerous countries still continue to face serious problems such as challenges in the globalisation process, internal conflicts, and health-related problems. Latin America and the Caribbean has been the third largest ODA recipient region, accepting 8.3 per cent. The large number of Japanese migrants and their ancestors have played a notable role in encouraging development

in the area. In view of the fact that these migrants traditionally have served as bridges between Japan and Latin America, it is imperative for Japan to maintain their efforts. In addition, this region is essential as a food supplier. The Middle East is another key region and has received 7.5 per cent of ODA. It plays a vital position in Japan's economic stability providing energy through petroleum products. Japan may continue to provide support for the social stabilization of this region and for the improvement of the environment for peace. Assistance to the countries of Central and Eastern Europe is quite small though they need more as they are currently in the process of transforming from centrally-planned systems to market economies. Japan's assistance to the Pacific island countries is quite similar to that of Eastern Europe. The donor depends on these countries for supplies of marine and forestry products. The vast coastal areas of these island nations provide marine products and underwater mineral resources.

As table 1 suggests, Japan aid is more concentrated in Asia. Among Asian regions itself aid is more skewed towards the Southeast (32.7 per cent) whose per capita incomes are higher than that of south which together with the West (so called Southwest) receive only 11.7 per cent. In terms of need, perhaps South Asia as it has nearly half of the world's poor needs more aid from the most and only developed country in Asia. South Asia, with total assistance from all donors, accounts US\$3 per person. India receives only US\$1 per person. Whereas, the Middle East, with nearly five times South Asia's per capita income, receives six times the per capita aid. This implies that distribution of aid is quite arbitrary and not need driven.

**Table 1: Types and geographical distribution of Japanese bilateral ODA in 2000, Net disbursement basis; US\$ million**

Region/Type	Grant aid	Technical cooperation	Total grants	Loans	Total ODA	Share
Asia	792.63	1,249.93	2,042.57	3,241.25	5,283.82	54.8
Northeast	112.66	436.65	549.31	151.17	700.48	7.3
Southeast	340.31	610.74	951.05	2,204.42	3,155.47	32.7
Southwest (of which <b>Sri Lanka</b> )	294.14 <b>(34.23)</b>	145.99 <b>(35.26)</b>	440.13 <b>(69.49)</b>	689.93 <b>(94.19)</b>	1,130.07 <b>(163.68)</b>	11.7 <b>(1.7)</b>
Central	24.83	23.64	48.47	167.97	216.44	2.2
Caucasus	20.13	9.05	29.18	27.76	56.94	0.6
Other regions	0.56	23.86	24.42	-	24.42	0.3
Middle East	234.05	165.85	399.90	327.56	727.46	7.5
Africa	664.89	248.72	913.62	55.37	968.98	10.1
Latin America	298.61	341.25	639.86	159.70	799.56	8.3
Oceania	54.52	56.57	111.08	39.98	151.06	1.6
Europe	46.35	68.30	114.65	2.92	117.57	1.2
Eastern Europe	(8.71)	(38.42)	(47.13)	(1.43)	(48.56)	(0.5)
Unspecified	17.70	1,573.95	1,591.64	-	1,591.64	16.5
Total	2,108.76	3,704.57	5,813.33	3,826.78	9,640.10	100.0

Source: Ministry of Foreign Affairs, The Government of Japan (Internal data source)

Notes: (1) Unspecified technical cooperation includes survey teams sent to more than one region on a single mission, subsidies to groups that assist foreign students, administrative expenses, and costs of raising public awareness of development issues. (2) Including assistance to Part 11(Aid to Countries and Territories in Transition). (3) Totals do not add up exactly because of rounding.

### **Size of assistance to Sri Lanka**

Japan, being the largest donor, has provided about 25 per cent of total foreign aid receipts for Sri Lanka. As shown in table 2, from 1960 to 2000 the country has received total ODA of US\$12497.3 million of which Japan has provided 25 per cent while 39, 35, and 1 per cents were supplied by other members of DAC, multilateral organisations and other donors respectively. There are several reasons as to why Japan provides such large assistance to Sri Lanka. First is the cordial relationship between the two countries. At the time of this writing, Japan and Sri Lanka are celebrating the 50th anniversary of the establishment of diplomatic relations between the two countries. Many activities in both countries have been organised to mark the event. According to many senior diplomats, "Japan and Sri Lanka have enjoyed solid and friendly relations since the establishment of diplomatic relations on 28 April 1952"<sup>6</sup>. Although official ties were established in 1952, Sri Lanka and Japan have nurtured a long-standing relationship built on trust. The second reason is the democratic and liberal nature of Sri Lankan governments since independence in 1948. And also Sri Lanka has made her own efforts at economic reform by implementing structural adjustment measures and other liberal policies that are favourable to Japan and other many developed countries. The third reason is the real need of assistance for the country's development. While development is progressing, particularly in urban areas, the country has a substantial need for assistance in economic development, including infrastructure and regional development. Because of the above-mentioned three criteria and policy dialogues, the country has been able to receive large amounts of foreign assistance as depicted in the table below.

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<sup>6</sup> See following websites for various remarks on the diplomatic relations between Japan and Sri Lanka (Accessed date is 05 December 2002):

(1) <http://mdn.mainichi.co.jp/specials/0204/0428srilanka.html>,

(2) [http://www.priu.gov.lk/News%20Update/features/20020219sri\\_lanka\\_japan\\_relationship.htm](http://www.priu.gov.lk/News%20Update/features/20020219sri_lanka_japan_relationship.htm), and

(3) <http://www.lk.emb-japan.go.jp/>.

**Table 2: Sri Lanka's ODA receipts from different donors (US\$ million)**

	Japan (1)	DAC Donors (excluding Japan) (2)	Multilateral (3)	Other donors (4)	Total (5) = (1) + (2) + (3) + (4)
1960	0.1	10.4	0.6	-	11.1
1961	0.1	11.9	-0.8	-	11.2
1962	0.1	12.7	0.3	-	13.1
1963	0.2	10.5	0.1	-	10.8
1964	0.2	8.2	0.5	-	8.9
1965	0.1	13.6	1.3	-	14.9
1966	6.9	21.4	0.7	-	29.0
1967	2.4	42.7	0.7	-	45.8
1968	5.1	37.4	11.6	-	54.0
1969	3.2	43.1	3.7	-	50.0
1970	3.2	40.1	5.9	-	49.2
1971	7.4	39.2	9.3	-	55.9
1972	4.8	44.2	8.9	-	57.9
1973	3.8	38.4	15.8	-	58.0
1974	10.5	47.7	22.5	-	80.8
1975	16.1	83.9	51.7	1.0	152.7
1976	10.9	84.0	39.2	20.9	155.0
1977	18.6	100.8	62.8	5.2	187.3
1978	39.5	176.8	104.0	3.6	323.9
1979	40.0	191.9	86.2	4.5	322.7
1980	44.8	251.3	87.5	6.0	389.6
1981	49.1	237.7	89.9	0.6	377.3
1982	61.6	243.8	110.8	-0.7	415.5
1983	73.1	273.9	122.6	1.2	470.8
1984	63.8	254.9	134.8	3.4	456.9
1985	83.7	250.4	128.7	5.5	468.3
1986	126.9	261.2	138.2	21.6	547.9
1987	118.3	207.8	148.4	2.4	477.0
1988	199.8	236.2	192.5	6.4	634.8
1989	185.2	212.1	225.6	-2.6	620.3
1990	176.1	227.7	329.5	-3.5	729.8
1991	256.1	201.4	435.0	-1.7	890.8
1992	96.0	152.8	397.2	-4.3	641.7
1993	147.2	169.2	346.1	0.4	662.9
1994	213.8	120.9	257.2	9.8	601.7
1995	263.7	110.3	181.5	-0.4	555.1
1996	173.9	105.4	209.0	-1.6	486.6
1997	134.6	93.7	103.7	-0.8	331.2
1998	197.8	84.5	210.3	14.3	507.0
1999	136.0	71.7	43.7	12.2	263.6
2000	163.7	76.5	25.2	10.9	276.3
Total	3138.4 25%	4902.3 39%	4342.4 35%	114.3 1%	12497.3 100%

Source: OECD Source

Notes: a) Other major donor include, German, Netherlands; Norway, Sweden, UK and USA.

b) Multilateral includes international organisations such as the International Development Agency (IDA), Asian Development Bank (ADB), United Nations Development Programme (UNDP) etc.

## **Types of Japanese assistance to Sri Lanka**

The Government of Japan provides three types of grants to Sri Lanka, i.e. aid loans, aid grants and technical assistance. The total aid programme is again divided into two sections as bilateral and multilateral. Bilateral aid dominates the aid programme whereas the Japanese government holds a different perspective towards the multilateral aid programme. The Overseas Economic Cooperation Fund (OECF) commenced in 1961 and took responsibility for the soft loan components of aid to developing countries. Sri Lanka became a beneficiary of the fund in 1976 and had been receiving loans at low interest rates until the fund ceased its activities in 1998 (OECF, 1999). Merging the Overseas Economic Cooperation Fund (OECF) and Export and Import Bank of Japan in 1999 formed Japan Bank for International Cooperation (JBIC) which now operates the ODA loan component of the total ODA. Recent loans carry about 1.8 per cent interest rate per annum with repayment periods of about 30 years, with a 10-year grace period. According to the table below, from 1960 to 2000 the country has received US\$1670.79 billion as loan aid- 53 per cent of total ODA.

The Japan International Cooperation Agency (JICA) was formally established in 1974 and manages grant aid and technical co-operation components of total ODA of the Government of Japan. It has sponsored activities in Sri Lanka for more than 20 years and has provided US\$1045.89 million and US\$406.62 million as grant aid and technical co-operation, respectively- 47 per cent of total ODA to Sri Lanka.

**Table 3: Types of Japan's ODA to Sri Lanka 1960-2000 (Net disbursement basis, US\$ million)**

Year	(1) Grant aid	(2) Technical cooperation	Total grants = (1) + (2)	(4) Loans	(5) Total ODA = (3) + (4)
1960	0.1	-	0.1	-	0.1
1961	0.1	-	0.1	-	0.1
1962	0.12	-	0.12	-	0.12
1963	0.17	-	0.17	-	0.17
1964	0.22	-	0.22	-	0.22
1965	0.13	-	0.13	-	0.13
1966	-	0.16	0.16	6.77	6.93
1967	-	0.19	0.19	2.21	2.4
1968	0.23	-	0.23	4.87	5.1
1969	0.1	0.52	0.52	2.7	3.22
1970	0.50	0.44	0.89	2.28	3.22
1971	-	0.74	0.74	6.67	7.41
1972	0.31	0.64	0.95	3.84	4.79
1973	-	0.94	0.94	2.88	3.82
1974	0.91	1.27	2.18	8.32	10.5
1975	0.13	1.67	1.8	14.28	16.08
1976	2.18	1.6	3.78	7.13	10.91
1977	2.54	2.37	4.91	13.66	18.57
1978	8.52	3.12	11.64	27.82	39.46
1979	17.75	3.95	21.7	18.33	40.03
1980	26.59	3.13	29.72	15.06	44.78
1981	27.51	4.13	31.64	17.43	49.07
1982	23.89	3.88	27.77	33.84	61.61
1983	29.52	5.75	35.27	37.81	73.08
1984	29.42	5.82	35.24	28.53	63.77
1985	33.35	7.71	41.06	42.68	83.74
1986	56.61	11.09	67.7	59.2	126.9
1987	54.16	12.47	66.63	51.62	118.25
1988	65.68	21.28	86.86	112.97	199.83
1989	75.89	17.79	93.68	91.56	185.24
1990	74.39	16.58	90.97	85.1	176.07
1991	48.05	19.23	67.27	188.86	256.13
1992	43.78	20.97	64.75	31.31	96.05
1993	71.70	22.74	94.44	52.75	147.2
1994	53.59	27.51	81.09	132.66	213.75
1995	82.06	36.37	118.43	145.27	263.7
1996	52.39	34.16	86.55	87.39	173.94
1997	44.08	28.79	72.87	61.69	134.56
1998	52.06	24.32	76.38	121.47	197.85
1999	34.10	30.48	64.58	71.45	136.03
2000	34.23	35.26	69.49	94.19	163.68
Total	1,045.89	406.62	1,452.49	1,670.79	3,123.27

Sources: Ministry of Foreign Affairs, Government of Japan and OECD Source



## **Area of Japanese assistance**

Having discussed the size and types of assistance, let's now look at what types of areas are considered for aid. The Japanese government has identified five main areas for her assistance to Sri Lanka based on the suggestions made by the Country-Specific Aid Research Committee. These proposals were discussed with a high level Sri Lankan government mission for Economic and Technical Co-operation and agreed upon in 1991. In 2002, however, the Country-Specific Aid Programme identified six areas, including a new area to support the ongoing peace process and to support the rehabilitation work in the north and east.

At the time of this writing the hostile situation which prevailed in the country until the end of last year is no longer a threat and it is everybody's hope to achieve national peace through a non-violent settlement of the conflict in the northern and eastern regions. This will help reduce the fiscal deficit as noticed in the proposed budget for 2003 and continue structural adjustment efforts, including the privatisation of state enterprises. The present United National Front (UNF) government signed a memorandum of understand (MOU) with the Liberation Tiger of Tamil Ealam (LTTE) after coming into power and has held three rounds of peace talks. As a result of the ongoing peace process both the government and the LTTE are seeking more funds for the rehabilitation of Sri Lanka's war ravaged north and east. Resettling over 800,000 internally displaced persons, improving health and economic infrastructure, institutional development and improving the supply of drinking water are some of the priorities, illustrating the need for increased funds from foreign aid. In that regard, Japan has pledged supplementary assistance to the government in rebuilding the north and east. In addition to this new area of assistance, the Japanese government has already identified the following five priority sectors for its cooperation.

**(a) Building and improving economic infrastructure:** Development of infrastructure was identified as a prerequisite for high growth and development in the post-war Japanese economy and construction of super-highways and high-speed railways were commenced as early as the 1960s. In Sri Lanka, governments since and even before independence have spent significant funds on social infrastructure, which delayed or hampered sufficient funds allocation for improvement of economic infrastructure that in turn adversely caused low economic growth. Having recognised this imbalance, policy-makers have now committed to spending half of the public investment on modernisation of infrastructure in telecommunications, ports, power and high-ways (NPD, 2001: p. 12). In line with this commitment it is expected to complete a super highway system linking major cities, three new ports (Colombo South Port, Galle and Hambantota), expansion of Bandaranaike International Airport and raising power generation capacity up to 3,600 MW by 2010. Japanese assistance has been provided to build nation-wide networks. Currently, the focus remains in the areas around Colombo. Development of Sri Lanka's southern area is being pursued in a planned fashion from a long-term perspective. As given in the following table, combined activities (transport; electric power and gas; telecommunication; and irrigation) account for more that 70 per cent of total loans covering well over half of projects.

**Table 4: Japanese ODA Loan Commitment to Sri Lanka by Sector (As of September, 2002)**

Sector	Number of commitments	Amount in Yen Billion	(% of total)
Transportation	24	176.3	(31.0)
Electric power and gas	16	135.6	(24.0)
Commodity loans	14	66.0	(12.0)
Social services	13	63.5	(11.0)
Telecommunications	6	56.8	(10.0)
Irrigation and flood control	9	38.8	(7.0)
Mining and manufacturing	5	20.3	(4.0)
Agriculture, forestry and fisheries	1	4.1	(1.0)
Total	88	561.3	(100)
Outstanding amount		268.9	(48.0)

Source: Japan Bank for International Cooperation (internal data sources)

**(b) Industrial development:** Another area of assistance is in the industrial sector, which accounts for about 20 per cent of GDP and its share in exports accounts for about 70 per cent. Nearly one million are employed in the industrial sector. Development of industrial sector is vital to country's development. Having developed adequate infrastructure, focus on relocation of industries to rural areas is required to supplement incomes in the outlying regions. Another benefit of this is to expand overall industrial establishments leading to export promotion. Given this background and also the scale of the domestic market, accelerating export-oriented industries is key to the country's development. Overall assistance to this sector is not that impressive though some assistance to mining and manufacturing industries has been provided with special emphasis on plans for industries with prospects for growth, as well as industrial estates, and technical co-operation to improve productivity and quality.

**(c) Development of agriculture, forestry, and fisheries sectors:** Japan has been providing assistance in improving agricultural infrastructure such as tanks and irrigation, accelerating agro-industries, agricultural research and promoting coastal fisheries. Agriculture has been the major sector in the domestic subsistence agricultural economy of Sri Lanka for a long period of time. The Department of National Planning (2001) reveals some strategies for the agricultural sector. With the completion of its plans, agricultural sector is expected to be entirely reworked by the end of 2010. In the new setting, there will be agricultural diversification, market-oriented modernisation and small and medium scale agriculture-based industries. Given these future plans, it would require increasing the current level of 1 per cent of total loan assistance. Japan, in particular could help develop the fisheries sector.

**(d) Human resources development:** Human resource development is vital for the country's development. The country has achieved remarkable social development since independence and is a well-known outlier for its outstanding achievement. The Human Development Report of UNDP for 1999 reveals that Sri Lanka has the highest living standard in South Asia, putting the country in the middle level of its human development category, and ranking it 90<sup>th</sup> among 172 nations, a position higher than the country's rank (112<sup>th</sup> place) in terms of its per capita income. However, there are several challenges that the country faces in its human resource

development. A lack of necessary inputs has begun to affect the quality of education. The university system in the country is not properly coordinated with labour markets, nor the agricultural and industrial sector of the economy. Japan and many other developed countries, there are strong links between applied research and the industrial sector. Japan, as one of the leading countries in the world, has identified the value of education and human resources development in economic development and is therefore endeavouring to provide effective assistance by accepting trainees and sending experts, in addition to improving the educational environment. Table 5 gives detailed data on Japanese assistance in personnel training.

**Table 5: Co-operation Statistics of JICA**

Programme	Total up to 2001
Technical cooperation (hundred million Yen)	464.16
Number of Sri Lankans trained in Japan	5131
Number of Japanese experts dispatched to Sri Lanka	997
Mission dispatched to Sri Lanka	2902
Number of Japan Overseas Cooperation Volunteers visited Sri Lanka	552
Supply of equipments (hundred million Yen)	62.70
Project type technical cooperation (number of projects)	26
Number of development study	75
Grant aid project (hundred million Yen)	1593.09

Sources: JICA, Tokyo (internal data sources)

**(e) Improving health and medical services:** Japan has provided assistance in upgrading regional hospitals, as well as improving diagnostic techniques and medical equipment maintenance technologies. In addition to this support, she also provides assistance to train personnel such as medical staff and nurses. Most likely, Sri Lanka will soon be faced to deal with ageing population, following Japan and Singapore in the Asian region. Perhaps, this may be the first developing country with similar levels of income to experience this kind of demographic transition in a relatively short period of time. This transition has changed the disease pattern of the people creating significant increases in cancer, diabetes, and cardiovascular disorders (DNP: 2001: p. 63). Over-crowded hospitals in many parts of the country and outlying regional health and medical services have yet to be developed. It should be noted here that nurse training in Japan have worked commendably and therefore Japan could offer many nurses training activities in Sri Lanka. This could be more helpful to the country than the dispatching of agricultural experts to Sri Lanka.

**3. Effects of Japanese ODA on Sri Lanka’s Development**

Having discussed the size, types and areas of assistance to Sri Lanka, we now turn to analyse the effects of Japanese aid on the economic development of Sri Lanka taking some macro-level indicators into consideration. There have been numerous studies and debates on the end product of foreign assistance on economic growth of the recipient country. Many of those studies mainly focused on the effects on savings, capital formation, foreign exchange and growth. Some studies conclude that foreign aid crowds out private savings and helps out public consumption, and has no substantial outcome on the macroeconomy of recipient countries (Alesina and

Dollar, 1998: p. 3). Rosentein-Rodan (1961) and Chenery Strout (1966) argue that foreign assistance helps growth through increasing capital stocks of developing countries. The role of foreign aid comes into this development equation through savings, where many developing countries facing a domestic gap (investment-savings gap) and foreign gap (imports-exports gap) preventing them from getting required funds for investment.

As given in appendix table 2, Sri Lanka confronts both internal and external gaps due to low savings, both in the private and government sectors and increasing imports over exports. Whatever the arguments for and against aid, developing countries are enthusiastic about getting overseas assistance in any form. Sri Lanka is no exception to this general trend and will continue to seek further assistance. During the last four decades or so Japanese ODA has accounted for 4.8 per cent of government revenue, about 10 per cent of government total expenditure, 9 per cent of total budget deficit, 4 per cent of gross capital formation and about 1 per cent of GDP (table 6).

**Table 6: Dependency ratio of Japanese ODA (1960-2000)**

	ODA as a % of government revenue	ODA as a % of government capital expenditure	ODA as a % of government budget deficit	ODA as a % of total investment	ODA as a % of GDP
1960	0.03	0.10	0.11	0.05	0.01
1961	0.03	0.09	0.10	0.04	0.01
1962	0.04	0.10	0.13	0.05	0.01
1963	0.05	0.18	0.21	0.07	0.01
1964	0.06	0.22	0.23	0.09	0.01
1965	0.03	0.12	0.14	0.06	0.01
1966	1.80	5.43	5.82	2.58	0.37
1967	0.60	1.57	1.93	0.79	0.12
1968	1.41	4.43	4.23	1.68	0.27
1969	0.77	2.13	2.45	0.90	0.15
1970	0.70	1.89	2.03	0.81	0.14
1971	1.56	4.79	4.07	2.06	0.31
1972	0.87	3.07	2.76	1.30	0.19
1973	0.61	2.09	2.46	0.98	0.13
1974	1.46	5.31	6.68	2.35	0.29
1975	2.22	5.54	5.37	3.05	0.42
1976	1.60	2.96	3.16	2.00	0.30
1977	2.46	6.18	7.80	3.27	0.45
1978	5.27	8.46	10.24	7.23	1.44
1979	5.21	7.45	8.62	4.71	1.19
1980	5.68	4.61	4.82	3.56	1.11
1981	6.39	7.07	7.12	4.05	1.11
1982	7.91	8.45	7.42	4.23	1.29
1983	7.37	9.75	10.55	4.87	1.41
1984	4.76	6.99	11.72	4.10	1.06
1985	6.27	10.07	11.97	5.91	1.40
1986	9.55	14.09	16.24	8.40	1.98
1987	8.26	14.31	15.95	7.61	1.77
1988	15.23	22.38	18.24	12.72	2.86
1989	12.37	26.42	23.67	12.31	2.65
1990	10.38	25.15	22.14	9.85	2.19
1991	13.91	28.94	23.91	12.58	2.85
1992	4.91	13.95	12.37	4.21	0.99
1993	7.22	18.04	16.34	5.64	1.42
1994	9.60	24.18	17.37	6.85	1.82
1995	9.92	27.40	20.04	7.91	2.02
1996	6.57	22.09	13.31	5.24	1.25
1997	4.81	15.77	11.29	3.66	0.89
1998	7.30	18.65	13.64	5.00	1.26
1999	4.89	13.32	11.54	3.18	0.87
2000	5.87	15.21	9.96	3.53	0.99
Average	4.78	9.97	8.98	4.13	0.95

Sources: Compiled by the author using data from various Annual Reports of the Central Bank of Sri Lanka.

With this in mind, an attempt is made in this section to analyse the effect of Japanese assistance on the macroeconomy of Sri Lanka focusing on savings, investment, growth, the fiscal situation and external sector. In order to find the relationships between aid and the variables mentioned above, we computed the correlation matrices given in table 7 below. We do not intend to discuss coefficients, as those are self-evident. However, it is worth noting the high correlation between aid and imports (0.905), deficit budget finance (0.916) and capital expenditure (0.909).

**Table 7: Correlation Matrix of Japan's ODA and some economic variables (1960-2000)**

	ODAJP	SAV	INV	GBD	GECA	GECUGS	MJP	XJP
ODAJP	1.000	0.830	0.855	0.916	0.909	0.888	0.905	0.891
SAV	0.830	1.000	0.992	0.959	0.954	0.980	0.967	0.942
INV	0.855	0.992	1.000	0.979	0.968	0.991	0.984	0.953
GBD	0.916	0.959	0.979	1.000	0.978	0.986	0.987	0.962
GECA	0.909	0.954	0.968	0.978	1.000	0.960	0.984	0.926
GECUGS	0.888	0.980	0.991	0.986	0.960	1.000	0.983	0.977
MJP	0.905	0.967	0.984	0.987	0.984	0.983	1.000	0.961
XJP	0.891	0.942	0.953	0.962	0.926	0.977	0.961	1.000

Notes: (1) ODAJP=Japanese ODA to Sri Lanka; (2) SAV=Domestic savings; (3) INV=Gross domestic capital formation; (4) GBD=Government budget deficit; (5) GECA=Government capital expenditure; (6) GECUGS=Government current expenditure on goods and services; (7) MJP=Imports from Japan; and (8) XJP=Exports to Japan.

The simple correlation coefficients supplied in table 7 might not illustrate complicated nature of links between aid and growth or other variables because aid is heterogeneous and it works over time (Cassen et al. 1994: p. 15). If one wishes to quantify the effectiveness of aid on a macroeconomic level through meaningful econometric indicators one should not depend on simple correlation matrices and cross-country models (Krueger et al. 1989: p. 117). Effectiveness of aid varies from country to country and is also due to different policy regimes over time. Considering these limitations, an attempt is first made to construct individual equations. And then a simple macroeconomic model will be constructed and utilized to observe the effects of aid on the economy.

**(a) ODA and domestic savings:** A number of studies have examined the effects of foreign assistance on domestic savings. Griffin and Enos (1970: 318) and Alesina and Dollar (1998: p. 3) argue that ODA crowds out private savings and helps increase government consumption leading to a negative relationship between foreign aid and domestic savings. Srinivasan (1975) and Chaudhuri (1978) also found a negative association between savings and foreign assistance. Their explanation was that aid recipient countries often refrain from collecting taxes but increase consumption after aid begins. Private sector entrepreneurs who receive loans from abroad also follow

this trend. As a result, there is decrease in domestic saving<sup>7</sup>. Following the models developed by Mosley (1980) and Pant (1991) we estimated a saving function (SAV) for Sri Lanka taking gross domestic product (GDP) and Japanese ODA (ODAJP) as explanatory variables. The estimated saving equations take the form of<sup>8</sup>:

**Equation 1:**

Dependent Variable: LOG (SAV)  
 Sample (adjusted): 1961 2000

Variable	Coefficient	t-Statistic
LOG (GDP)	1.223656	19.30663
LOG (ODAJP)	-0.092935	-2.777635
C	-3.977426	-7.366492
AR (1)	0.332114	2.132594
Adjusted R-squared	0.990494	
Durbin-Watson stat	1.726347	

The positive and negative parameters of savings in equation 1 with GDP and Japanese ODA in the above equations are significant and acceptable according to the empirical results cited above. However, how should we interpret this negative relation with ODA? Does it mean that Japanese ODA affects negatively to domestic savings of Sri Lanka? Does aid cause low savings or low savings cause aid? It is quite obvious that the government can expand its expenditure anticipating more foreign assistance in the years to come resulting in reducing government savings. It should be mentioned that domestic savings consists of private and government savings. One can argue that there are other important factors such as country's financial structure, level of income government fiscal policy are more important than foreign assistance in explaining private savings. Therefore, it is impossible to conclude that Japanese ODA has lead to a decline in the country's savings and it is wasted. It is safe to say that large government deficit or negative government saving which is a part of domestic savings accompanied a high inflow of foreign assistance.

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<sup>7</sup> See Cassen et al. 1994, chapter 3 and references sited therein for more detailed quantitative analysis of the macroeconomic contribution of aid.

<sup>8</sup> The ordinary least square (OLS) or two stage least-squares (2OLS) method is used for estimation of equations, using annual data, dating from 1960 to 2000 unless otherwise mention in respective equation. The equations have been evaluated by using standard statistical diagnostics. The coefficients of determination (**R<sup>2</sup>**) are adjusted for degree of freedom. The standard errors of regression are given by **SE** while the Durbin-Watson statistic is shown as **DW**. When there is an indication of the existence of first order auto-correlation, the respective equation is then re-estimated by using the Cochrane-Orcutt technique. All correspondent "t" statistics are in are given with each of the coefficients. Most coefficients are significant at the 5 per cent or 1 per cent level. The signs of the coefficients are correct as expected except export equation.

### Equation 2:

Dependent Variable: SAV

Sample (adjusted): 1963 2000

Variable	Coefficient	t-Statistic
GDP	0.219933	29.18222
ODAJP	-1.995236	-4.226963
ODAJP (-1)	-1.039644	-2.108736
ODAJP (-2)	-1.846008	-3.347827
ODAJP (-3)	1.193873	2.122384
C	-2409.158	-2.383022
Adjusted R-squared	0.993990	1224.923
Durbin-Watson stat	2.124190	4798.707

It is argued that, in the longer run, aid enables recipient countries to improve their productive capacity so that they can find their own funds for investment. This implies that "it is possible for aid to have negative effect on savings in the short-run and yet promote self-reliance in the longer run" (Cassen et al. p: 26). The second saving equation above with time lags captures the effects of aid on saving in the short run and proves the self-reliance in the longer run.

**(b) ODA and gross domestic capital formation:** Krueger et al. (1989: p. 119) cited two set of analysis explaining the relationship between aid and investment (or gross capital formation of a country). The first approach, which is quite direct, when a positive relationship between aid and investment is found, aid can be presumed to make a favourable contribution to growth. The second approach, which follows the neoclassical framework, tries to link growth with capital formation, domestic and foreign savings as well as other variables. An attempt is made to use both approaches and the result of the first method is reported below while the result of second approach is presented together with the econometric model.

### Equation 3:

Dependent Variable: LOG (INV)

Sample (adjusted): 1961 2000

Variable	Coefficient	t-Statistic
LOG (SAV)	0.753714	12.43998
LOG (ODAJP)	0.172207	5.139371
C	1.664374	3.749539
AR (1)	0.627163	4.788997
Adjusted R-squared	0.991480	
Durbin-Watson stat	1.804495	

According to the above equation 3, aid from Japan positively affects investment. The elasticity (0.17) suggests that an increase of aid by one unit improves capital formation by 0.17. Krueger et al. (ibid), quoting two studies done for eleven African countries, explains a positive relation, i.e. on average \$1 of aid increase investment by \$1.39<sup>9</sup>.

<sup>9</sup> See for details Heller, Peter S (1975) "A Model of Public Fiscal Behaviour in Developing Countries: Aid, Investment and Taxation", *American Economic Review* 65 (June): 429-45 and Halevi, N. (1976)



We re-estimated the same equation without log and with a time lag and the result are reported in equation 4. The negative effects of aid on investment after a three-year period needs more careful analysis since it has vital policy implications for effective use of foreign aid in Sri Lanka. This could be due to lack of maintenance or due to non-availability of parts for repairing. The negative coefficient in the estimated investment equation 3 might be used to support his argument.

**Equation 4:**

Dependent Variable: INV

Sample (adjusted): 1963 2000

Variable	Coefficient	t-Statistic
SAV	1.406563	23.90600
ODAJP	3.192163	4.274756
ODAJP (-3)	-2.457951	-2.329262
C	1529.998	0.801252
Adjusted R-squared	0.990059	
Durbin-Watson stat	1.648994	

**(c) ODA and government expenditure:** Most foreign aid affects the recipient country's economy through government recurrent and capital expenditure. Therefore, it is important to look at how government uses its aid rather than looking at the negative impact of aid to national savings. Allocation of assistance for consumption or investment depends on the government policy and objectives of the donor country. The following two equations reveal some statistical evidence as to how the government allocates its Japanese assistance. The elasticity (0.05) in equation 5 relating to Japanese ODA suggests that if the flow of assistance increases by 1 per cent there is a possibility of increasing government capital expenditure (GECA) by 0.05 per cent.

**Equation 5:**

Dependent Variable: LOG (GECA)

Sample (adjusted): 1961 2000

Variable	Coefficient	t-Statistic
LOG (ODAJP)	0.050368	2.008588
LOG (GR)	0.172575	2.404661
LOG (GECA (-1))	0.751156	10.20817
D2	0.683900	6.096073
C	0.296218	0.985658
Adjusted R-squared	0.993227	
Durbin-Watson stat	2.254516	

Equation 6 below presents how aid affects government current expenditure on goods and services (GECUGS). The estimated elasticity (0.01) is smaller (and even less significant) than that of government capital expenditure (0.05). Based on these empirical results presented in equation 5 and 6, it be possible to conclude that much of Japanese ODA goes to investment related projects rather than consumption. However, given the nature of items listed under government expenditure on goods and services, part of the assistance may have been allocated for recurrent

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The Effects of Investment and Consumption of Import Surpluses of Developing Countries", *Economic Journal*, 86 (December): 853-58.

expenditures on health, nutrition and education. Food and other commodity aid may go under the same expenditure category. Some argue that even through some aid goes to consumption it must not be assumed that it is thereby wasted and it may have substantial returns in term of GDP growth in the longer run (Cassen and associates, 1994: p. 26)

**Equation 6:**

Dependent Variable: LOG (GECUGS)  
 Sample (adjusted): 1973 1999

Variable	Coefficient	t-Statistic
LOG (ODAJP)	0.012247	0.413022
LOG (GR)	0.266986	2.285077
LOG (GECUGS (-1))	0.731765	8.342574
D1	0.322223	3.836486
C	-0.200045	-0.640586
Adjusted R-squared	0.996767	
Durbin-Watson stat	1.960015	

**(d) ODA and Sri Lanka’s trade with Japan:** Critics say that much aid to developing countries is tied to the donor countries’ trade. The US has less tied aid compared to some other donor countries, but still a large portion of US Aid’s budget is tied (Hellinger et al. 1988: p. 57). With respect to untying of aid, the OECD Development Assistance committee endorsed a proposal to untie aid to least developing countries in April 2001. However, this belated gesture still covers only a part of aid, excluding food aid and technical co-operation (Todaro and Smith 2003: p. 657). Also, some countries that had received large amounts of aid became successful exporters, signifying that the trade policy of a country is an important factor in deciding the magnitude of aid as in many cases trade policies are discussed with donor countries. Sri Lanka, among others, is a classic example for this. The amount of aid received from Japan and trade with Japan increased after liberalisation policies introduced were in 1977. The country’s total value of Japanese imports from 1960 to 2000 was US\$671.5 million while export value for the same period was only US\$293.15 million, leading to a accumulated negative trade balance of US\$229.06 million between the two countries (appendix table 1). The high correlation coefficient (table 8) and following equation 7 prove the high correspondence between aid and imports.

**Equation 7:**

Dependent Variable: LOG (MJP)  
 Sample (adjusted): 1961 2000

Variable	Coefficient	t-Statistic
LOG (ODAJP)	0.175363	3.096480

LOG (GDP)	0.958735	7.504899
C	-6.803824	-5.282489
AR (1)	0.756746	7.608715
Adjusted R-squared	0.986107	
Durbin-Watson stat	2.252825	

Elasticities for ODA variable (ODAJP) and income variable (GDP of Sri Lanka) are 0.17 and 0.95 respectively. This implies that if Japanese ODA increased by 100 units, 17 units go for imports from Japan. However, estimated export elasticity of ODA in equation 8 is insignificant, suggesting that there is no strong relationship between Japanese aid and exports of Sri Lanka to Japan.

**Equation 8:**

Dependent Variable: LOG (XJP)

Sample (adjusted): 1961 2000

Variable	Coefficient	t-Statistic
LOG (ODAJP)	-0.028513	-0.748210
LOG (GDPJ)	0.909705	17.64658
C	-10.51281	-16.02731
AR (1)	0.504986	4.405208
Adjusted R-squared	0.994672	
Durbin-Watson stat	1.921773	

**(e) ODA and growth (multiplier analysis):** So far we analysed the effects of aid on the economic growth taking some macro level indicators. Those analyses, however, provide no direct links to growth though we could shed some light on how aid affects growth through those macro variables. For example, aid may increase investments and investment may improve GDP. We attempt, therefore, to understand the final effects of Japanese assistance on growth by constructing a simple econometric model. In doing this, the equations presented earlier are used with some modification in order to maintain model stability and correct model specification. The complete model is given in appendix table 3 has 16 variables of which nine are endogenous. The individual equations discussed above fit the historical data well but may not perform well in a dynamic simultaneous equation system. At the same time, the opposite may also happen. The individual estimations of the whole model may have insignificant statistics but the model as a whole may represent historical data very closely. Thus, the next logical step is to evaluate the tracking ability of the model as a whole with simultaneous system.

The simulation process of a model can be used for different purposes, among others, checking the stability of a model, multiplier analysis (historical policy analysis), and forecasting (Pindyck and Rubinfeld, 1998: 383). A historical simulation of the model was performed for the period 1980-2000 to test its explanatory performance. The Gauss-Siedel iteration technique available with Eviews Software was practiced in the simulation. There are many ways of representing these deviations of simulation values from observed values. Mean average percentage error (MAPE) computed for the period 1980-2000 is used as an indication of a systematic bias. The results of a fully dynamic simulation are given in the table below.

**Table 8: Validation of the model**

Variable	MAPE	R <sup>2</sup>
GDP	7.1	Identity
Budget deficit	10.3	Identity
Investment	2.7	0.973
Private consumption	7.6	0.999
Government consumption	4.2	0.985
Government revenue	9.2	0.992
Imports from Japan	4.6	0.974
Exports to Japan	1.0	0.903
Trade balance between Japan and Sri Lanka	8.2	Identity

As shown in the table 8, MAPE is less than 10 per cent for most of the endogenous variables and therefore the tracking ability of the model is satisfactory and has good stability. Having tested the model we then simulated it for multiplier analyses for the period 1980-1990. The purpose of this simulation is that by evaluating multipliers associated with ODA variable, it is possible for policymakers to obtain an assessment of the dynamic response of the economy. With this in mind, the amount of Japanese ODA is increased by 100 per cent. The shock is assumed to be sustainable and the impacts of the shock are given in the following table in terms of percentage deviation from the control solution or base run simulation.

**Table 9: Multiplier analysis of sustained increase of Japanese ODA by 100 per cent**  
(Percentage deviation from the base run simulation)

	GDP	Budget deficit	Investment	Govt. revenue	Imports from Japan	Private consumption
1980	18.64	-14.47	14.57	11.52	2.16	16.06
1981	9.27	-19.35	6.84	6.74	3.67	8.24
1982	13.09	-15.97	9.10	9.31	9.17	11.41
1983	13.48	-26.32	10.52	10.29	5.61	12.13
1984	9.58	-15.05	8.72	8.23	1.13	9.03
1985	6.28	-7.04	4.28	4.86	1.99	5.85
1986	6.42	-9.81	5.02	4.95	3.63	6.02
1987	7.60	-13.67	6.72	6.05	5.63	7.13
1988	9.71	-15.69	8.44	7.35	4.34	9.12
1989	-0.10	-0.02	-1.67	0.01	2.23	0.04
1990	4.14	-7.77	3.47	3.35	-0.02	3.98

Our simulation results reveal that if ODA increases by 100 per cent, government revenue will be increased by 11.52 per cent in the first period and reduce the budget deficit by 14.47 per cent. Increase in the government revenue in turn results in raising government consumption and investment, paving the way to increase GDP by 18.64 per cent in the first period through multiplier and accelerate effects. As a result, private consumption, which is a function of income, also increases. Imports from Japan are increased by 2.16 per cent.

#### 4. Analysis of the results and concluding remarks

Because of the domestic economic slowdown in Japan, ODA flows to developing countries as a whole have been decreasing. However, the Japanese aid flow to Sri Lanka may continue, perhaps at the same level or even increase for some

years to come as the Government of Japan has expressed its desire to participate actively in the post war reconstruction of the northeast. It is quite obvious that Japanese assistance to Sri Lanka, given her small nature, is of considerable significance to her economic development. It is imperative that Sri Lanka continues to receive assistance given her needs in addressing poverty alleviation, infrastructure growth, and the development of the northeast. ODA flow from Japan will continue to play a crucial role in coping with these challenges.

Section 3 demonstrated how aid influences our development process by quantifying the effects of aid on savings, investment and government expenditure. In our saving function, the positive relation with savings and three-year time lag of ODA prove the possibility of becoming self-reliant after some years of aid receipts. Before one takes these results toward policy decision, however, detailed quantitative analysis of the effectiveness of aid on savings and investment should be done by separating the private and government sectors, as the current study has the two sectors together. Empirical results suggest that aid flows have strong positive link with imports but not with exports, paving the way for a huge trade deficit between the two countries. This gap could be narrowed down with more Japanese FDI leading to more exports than increasing ODA. Moreover, our multiplier analysis reveals that if Japanese ODA flow to Sri Lanka double her GDP will increase by 18.64 per cent while government revenue and investment increase by 11.52 and 14.52 per cents respectively. These are some indicators to conclude that aid has positive and tangible results at the macro level even though magnitude may have some limitation due to the smallness of our model. However, if one is to get the complete impacts, it is necessary to undertake comprehensive macro models or micro level studies at sector level. For this purpose, micro level econometric models can be constructed if the necessary time series data at sector or project levels are available.

Of total Japanese ODA, 47 per cent is in grant form while the majority (53 per cent) is still in loan form. Given the country's huge debt burden it is preferred to receive foreign assistance more in the form of grants rather than in loan form. It should be noted that total government debt also reached its second peak of 103.6 per cent of GDP in 2001 after 108.7 per cent in 1989. Given the resource constraints for high priority development projects, the government may be compelled to seek more foreign assistance. However, it is equally important to think of national pride and erase the dependent attitude from our minds and push for greater self-reliance.

The general impression that donor countries (perhaps except Japan) have about Sri Lanka not keeping to its timeframe commitments, under-use of funds, diverting funds for other projects has got to be wiped away. This can be done either by improving existing ODA evaluation systems or introducing new appraisal methods. Initiating a common procedure or manual for ODA assessment would succeed in lessening the procedural difference in both countries. The procedure or manual should include project, programme or policy-level evaluation, appraisal and monitoring. This would improve effectiveness and enhance accountability of financial inflow.

In this regard, three main Japanese associations in Sri Lanka, namely the Japanese Embassy, JICA, and OECF can coordinate closely with their Sri Lankan

counterparts. Research and evaluation of more effective ODA programmes and policies, emphasizing the critical role of the above organisations, should be undertaken. It is also vitally important to strengthen the evaluation capacity of the Sri Lanka as the partner country. This is crucial for projects in the north and east in particular and to the rest of the country in general as the public is eager to know the real effects of any financial assistance given to their area. The real value of the evaluation of activities should be assessed by the impact they have produced in the target areas or on the programmes. Integrating assessment response into planning and monitoring programmes and building new strategies with partner countries will improve the quality of aid programmes in general. The inclusion of a wide range of stakeholders including NGOs in donor and partner countries as well as international development agencies is also crucial to the process.

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**Appendix Table 1: Japan's ODA to Sri Lanka and its trade with Sri Lanka (US\$ million)**

Year	Total ODA	Sri Lanka's exports	Sri Lanka's imports	Imports as % of exports
1960	0.1	1.04	2.68	258.88
1961	0.1	0.85	2.75	323.29
1962	0.12	0.61	2.70	445.95
1963	0.17	0.80	1.83	228.96
1964	0.22	0.80	1.94	242.32
1965	0.13	0.84	1.83	217.18
1966	6.93	0.92	2.38	258.07
1967	2.4	1.06	1.54	145.78
1968	5.1	1.03	2.05	199.61
1969	3.22	1.05	2.98	283.71
1970	3.22	1.45	2.08	143.51
1971	7.41	1.58	2.82	178.38
1972	4.79	1.90	2.38	125.26
1973	3.82	3.06	2.17	71.04
1974	10.5	2.55	5.65	221.56
1975	16.08	2.56	4.16	162.66
1976	10.91	3.06	4.46	145.82
1977	18.57	3.93	6.18	157.32
1978	39.46	6.83	12.16	178.15
1979	40.03	6.94	13.08	188.51
1980	44.78	4.58	19.64	428.91
1981	49.07	5.68	19.23	338.41
1982	61.61	5.95	18.91	317.89
1983	73.08	5.74	24.20	421.81
1984	63.77	6.62	21.11	318.78
1985	83.74	6.65	22.43	337.53
1986	126.9	7.51	24.23	322.52
1987	118.25	7.65	21.18	276.80
1988	199.83	9.46	23.86	252.21
1989	185.24	9.78	24.64	251.85
1990	176.07	11.18	26.24	234.76
1991	256.13	10.98	24.29	221.25
1992	96.05	12.61	29.91	237.23
1993	147.2	14.09	32.40	229.90
1994	213.75	15.72	37.90	241.12
1995	263.7	19.35	35.79	184.94
1996	173.94	22.80	33.39	146.45
1997	134.56	22.24	34.30	154.27
1998	197.85	18.90	40.41	213.80
1999	136.03	14.09	36.27	257.41
2000	163.68	18.74	43.34	231.30
Total	3,123.27	293.15	671.50	229.06

Sources: Ministry of Foreign Affairs, Government of Japan and OECD Source



**Appendix Table 2: Some macroeconomic indicators of the Sri Lankan economy**

	(1)	(2)	(3) = (1)-(2)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1950	9.0	12.4	-3.4	3.5	-4.2	-	11.6	16.9	-	-
1951	10.8	10.8	0.0	1.9	-1.1	-	9.6	16.3	6.2	-
1952	13.2	2.9	10.3	-9.9	-6.0	-	6.3	23.2	4.6	-
1953	12.9	6.7	6.2	-3.5	-5.3	-	4.7	27.8	1.9	1.6
1954	8.7	12.6	-3.9	6.4	0.1	-	8.2	24.5	2.7	-0.5
1955	10.6	11.0	-0.4	6.2	1.7	-	10.0	21.4	5.9	-0.6
1956	12.1	11.4	0.7	1.6	-1.3	-	9.7	23.7	0.7	-0.3
1957	13.0	6.1	6.9	-3.8	-4.7	-	7.2	27.1	1.5	2.6
1958	13.0	5.9	7.1	-2.8	-4.0	-	6.6	27.9	2.9	2.1
1959	13.1	14.8	-1.7	-3.2	-6.4	-	4.5	29.1	1.5	0.2
1960	14.5	11.7	2.8	-3.3	-6.2	-	3.2	34.0	6.7	-1.6
1961	16.4	15.2	1.2	-1.4	-6.7	-	3.6	40.0	2.1	1.3
1962	15.3	14.2	1.1	-2.0	-6.5	-	3.2	44.6	4.6	1.4
1963	15.8	14.2	1.6	-2.3	-5.3	-	3.0	47.7	2.8	2.4
1964	14.2	12.3	1.9	-2.1	-5.9	-	2.1	50.4	6.4	3.2
1965	12.6	12.9	-0.3	0.7	-5.3	-	2.7	54.9	2.3	0.3
1966	14.3	10.8	3.5	-3.5	-6.8	-	1.9	63.2	3.8	-0.2
1967	15.2	12.0	3.2	-3.2	-6.7	-	2.2	65.9	5.1	2.2
1968	16.0	12.9	3.1	-3.4	-6.7	-	2.4	63.2	8.2	5.9
1969	19.2	13.0	6.2	-7.0	-6.7	-	1.7	62.5	4.8	7.5
1970	18.9	15.8	3.1	-2.6	-6.9	0.0	2.1	63.6	4.3	5.9
1971	17.1	15.1	2.0	-1.5	-7.7	0.0	2.7	69.6	0.2	2.7
1972	17.3	15.7	1.6	-1.3	-6.8	0.0	3.6	71.2	3.2	6.3
1973	13.7	12.5	1.2	-0.9	-5.4	0.0	3.7	66.8	3.7	9.6
1974	15.7	8.2	7.5	-3.8	-4.4	0.0	2.3	51.8	3.2	12.3
1975	15.6	8.1	7.5	-2.9	-7.9	0.0	1.7	54.8	2.8	6.6
1976	16.2	13.9	2.3	-0.2	-9.6	0.0	3.0	58.5	3.0	1.3
1977	14.4	18.1	-3.7	3.5	-5.8	0.0	5.9	68.6	4.2	1.2
1978	20.0	15.3	4.8	-3.4	-14.1	0.1	5.6	72.5	8.2	12.1
1979	25.8	13.8	12.0	-6.8	-13.8	1.4	5.2	67.7	6.3	10.7
1980	33.8	11.2	22.6	-16.3	-23.1	1.1	2.2	72.2	5.8	26.1
1981	27.8	11.7	16.1	-10.1	-15.6	1.1	2.9	76.1	5.8	18.0
1982	30.8	11.9	18.9	-11.9	-17.4	1.3	3.2	81.2	5.1	10.8
1983	28.9	13.8	15.1	-9.0	-13.4	0.7	3.3	81.0	5.0	14.0
1984	25.8	19.9	5.9	-0.9	-9.0	0.5	4.5	68.5	5.1	16.6
1985	22.2	10.2	12.0	-7.0	-11.7	0.5	3.9	80.2	5.0	1.5
1986	23.7	12.0	11.6	-6.7	-12.2	0.5	3.7	86.8	4.3	8.0
1987	23.3	12.8	10.5	-5.1	-11.1	0.9	3.5	97.0	1.5	7.7
1988	22.8	12.0	10.8	-5.7	-15.7	0.7	3.1	101.2	2.7	14.0
1989	21.7	12.2	9.5	-4.6	-11.2	0.3	3.2	108.7	2.3	11.6
1990	22.2	14.3	7.9	-4.7	-9.9	0.5	3.8	96.6	6.2	21.5
1991	22.9	12.8	10.1	-6.9	-11.9	0.6	4.6	98.5	4.6	12.2
1992	24.3	15.0	9.3	-5.7	-8.0	1.3	4.9	95.3	4.3	11.4
1993	25.6	16.0	9.5	-4.8	-8.7	1.9	6.4	96.8	6.9	11.7
1994	27.0	15.2	11.8	-7.3	-10.5	1.5	7.2	95.1	5.6	8.4
1995	25.7	15.3	10.4	-5.9	-10.1	0.5	6.6	95.2	5.5	7.7
1996	24.2	15.3	8.9	-4.9	-9.4	1.1	6.0	93.3	3.8	15.9
1997	24.4	17.3	7.1	-2.6	-7.9	2.9	6.4	85.8	6.3	9.6

1998	25.1	19.1	6.0	-1.4	-9.2	1.4	5.9	90.8	4.7	9.4
1999	27.3	19.5	7.3	-3.6	-7.5	1.4	5.2	95.1	4.3	4.7
2000	28.0	17.3	10.7	-6.4	-9.9	1.1	3.5	97.1	6.0	6.2
<b>Average</b>	<b>19.3</b>	<b>13.0</b>	<b>6.2</b>	<b>-3.6</b>	<b>-8.2</b>	<b>1.0</b>	<b>4.6</b>	<b>64.7</b>	<b>4.3</b>	<b>7.2</b>

Source: World Development Indicators CD Rom 2001 by World Bank and various Annual Reports of the Central Bank of Sri Lanka

Notes: (1) Gross domestic capital formation; (2) Gross domestic savings (3) Domestic gap; (4) Current account balance in BOP (% of GDP); (5) Overall budget deficit, before grants (% of GDP); (6) Foreign direct investment, net inflows (% of GDP); (7) External assets (US\$, month of imports); (8) Government total debt (% of GDP); (9) GDP growth rate at 1996 factor cost price; and (10) Inflation (CPI). FDI average for Sri Lanka is from 1978 to 2000.

**Appendix table 3: The complete simultaneous model**

System: S22OLS  
 Estimation Method: Iterative Two-Stage Least Squares  
 Sample: 1980 2000  
 Instruments: C ODAJP DIS1 GDPJ X M SAV  
 Convergence achieved after 5 iterations

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.708591	0.007112	99.62996	0.0000
C(2)	14436.64	4798.730	3.008430	0.0030
C(3)	0.552386	0.187923	2.939424	0.0038
C(4)	0.380265	0.096359	3.946357	0.0001
C(5)	0.379584	0.185920	2.041650	0.0428
C(6)	-2573.502	1312.191	-1.961225	0.0515
C(7)	-0.796899	0.350127	-2.276029	0.0241
C(8)	1.598218	0.140431	11.38080	0.0000
C(9)	4.076576	1.699757	2.398329	0.0176
C(10)	-7.717181	3.286714	-2.347992	0.0200
C(11)	8911.806	6558.345	1.358850	0.1760
C(12)	4.04E-06	6.31E-07	6.395443	0.0000
C(13)	-0.003637	0.016583	-0.219310	0.8267
C(14)	-1.210637	56.93434	-0.021264	0.9831
C(15)	0.016526	0.016039	1.030329	0.3043
C(16)	0.001789	0.000624	2.866031	0.0047
C(17)	0.170199	0.351440	0.484291	0.6288
C(18)	170.5840	81.06381	2.104317	0.0368
C(19)	0.159240	0.006062	26.26683	0.0000
C(20)	1.376519	0.526436	2.614787	0.0097
C(21)	4417.499	2265.277	1.950092	0.0528

Determinant residual covariance 0.000000

Equation:  $GDP = CP + G + INV + X - M + DIS1$

Observations: 21

R-squared	1.000000	Mean dependent var	449637.8
Adjusted R-squared	1.000000	S.D. dependent var	367197.7
S.E. of regression	0.000000	Sum squared resid	0.000000

Equation:  $CP = C(1)*GDP + C(2) + [AR(1)=C(3)]$

Observations: 21

R-squared	0.999556	Mean dependent var	332265.9
Adjusted R-squared	0.999507	S.D. dependent var	261240.3
S.E. of regression	5799.336	Sum squared resid	6.05E+08
Durbin-Watson stat	2.045362		

Equation:  $G = C(4)*GR + C(5)*G(-1) + C(6) + [AR(1)=C(7)]$

Observations: 21

R-squared	0.987902	Mean dependent var	44635.52
Adjusted R-squared	0.985767	S.D. dependent var	37603.79
S.E. of regression	4486.274	Sum squared resid	3.42E+08
Durbin-Watson stat	1.789175		

Equation:  $INV = C(8)*SAV + C(9)*ODAJ + C(10)*ODAJ(-3) + C(11)$

Observations: 21

R-squared	0.977336	Mean dependent var	114072.8
Adjusted R-squared	0.973337	S.D. dependent var	98366.84
S.E. of regression	16062.17	Sum squared resid	4.39E+09
Durbin-Watson stat	2.072627		

Equation:  $TBJP = MJP - XJP$

Observations: 21			
R-squared	1.000000	Mean dependent var	700.8385
Adjusted R-squared	1.000000	S.D. dependent var	441.4211
S.E. of regression	0.000000	Sum squared resid	0.000000

Equation:  $XJP = C(12)*GDPJ + C(13)*ODAJP + C(14)$

Observations: 21			
R-squared	0.912792	Mean dependent var	570.9595
Adjusted R-squared	0.903102	S.D. dependent var	454.8419
S.E. of regression	141.5852	Sum squared resid	360834.5
Durbin-Watson stat	1.163347		

Equation:  $MJP = C(15)*ODAJP + C(16)*GDP + C(17)*MJP(-1) + C(18)$

Observations: 21			
R-squared	0.978241	Mean dependent var	1271.798
Adjusted R-squared	0.974401	S.D. dependent var	848.4134
S.E. of regression	135.7439	Sum squared resid	313248.8
Durbin-Watson stat	1.972372		

Equation:  $GR = C(19)*GDP + C(20)*ODAJP + C(21)$

Observations: 21			
R-squared	0.992937	Mean dependent var	84801.52
Adjusted R-squared	0.992152	S.D. dependent var	63594.71
S.E. of regression	5633.812	Sum squared resid	5.71E+08
Durbin-Watson stat	1.730057		

Equation:  $GBD=GE-GR$

Observations: 21			
R-squared	1.000000	Mean dependent var	44160.14
Adjusted R-squared	1.000000	S.D. dependent var	30924.09
S.E. of regression	8.35E-12	Sum squared resid	1.46E-21
Durbin-Watson stat	1.776018		

#### List of variables:

Endogenous:

CP= Private consumption

G= Government consumption

GDP= GDP

GR = Government revenue

INV= Investment

MJP= Imports from Japan

TBJP= Sri Lankan trade balance with Japan

XJP= Exports to Japan

Exogenous variables:

DIS1= Data discrepancy

GDPJ = GDP of Japan

M = Total imports

ODAJP = Japanese ODA flow Sri Lanka

SAV = Total savings

X = Total export