

CHAPTER-I

INTRODUCTION

1.1 Background of the Study

Nepal is a landlocked and developing country between two neighboring economic powers, India to the south and China to the North. After the restoration of democracy, Nepal introduced into the outside world. Agriculture is the main sector which provides employment about 73.9 % (CBS, 2008) of the population. The contribution of the agriculture sector to GDP is 32.12 percent in 2014/15 (MoF, 2016) with existence of huge disguised unemployment and high incidence of poverty in this sector. The population of Nepal is 268 million and the average population growth rate is 1.35 percent per annum (CBS, 2011). About 21.6 percent people are below the poverty line (NPC, 2016). Nepal low growth economy with a lower per capita income in the SAARC region, where economic growth rate is 0.9 percent and per capita income US \$ 752 (MoF, 2016).

Rice and wheat are the main food crops with a population of about 25 million. The average population growth is about 1.35% per annum (CBS, 2011). About 23.8% of the Nepalese population are below the poverty line although human development indicator remains unsatisfactory. Nepal ranked 146 out of 188 countries on the human development index in 2015 (UN, 2016).

Nepalese economy is passing through structural changes. Contribution of agricultural and industry sectors to GDP has continued to decline while that of services sector is increasing. On classification of GDP into agriculture and non-agriculture sectors, contribution of agriculture sector to GDP has been gradually declining while that of non-agriculture sector has continued to rise. Contribution of agriculture sector to real GDP in FY 2000/01, which stood at 36.6 percent has come down to 33.1 percent in the FY 2014/15. Likewise, contribution of the non-agriculture has grown from 63.4 percent to 66.9 percent during the same period (MoF, 2015).

Agriculture sector is the backbone of the Nepalese economy occupying a place of pride in the field of National income, livelihood employment, industrial development and

international trade. However, agriculture as the main occupation is mostly unproductive. It is carried on in an old fashion with the absolute and outdated methods of production as a result. The yield from land is precariously low and peasants continue to live at a bare subsistence level. Overcrowding and consequent pressure of population on land has led to sub-division and fragmentation of holding, declined in the area of land per capita, disguised unemployment and marginal productivity of labour zero or even negative. It is attributed to low ratio of land to labour, inferior soil, outdated technology, insufficient land use pattern, small amount of capital in use etc. It is obvious that not much can be achieved unless pressure of population on land is reduced and market-oriented approach and commercialisation process are initiated.

The Agricultural Perspective Plan (APP) on the Tenth Plan focused on commercialisation and diversification of the agriculture by cultivating higher value crops and creating conducive environment for the participation of private sector and reducing poverty by increasing agriculture production and employment opportunities (NPC, 2002). Considering the fundamental aspects of agriculture development, the basic feature of plan formation, implementation and monitoring process requires the huge amount of expenditure which is impossible through the national saving that is possible only either taking loan or receiving aid by major donors in the present situation of Nepalese economy.

The Nepalese economy, at present is passing through the critical phase of low-level equilibrium trap circumscribed by low rate of internal revenue mobilization, huge budgetary deficits, poverty and stagnation. Very low rate of saving only about 10.9 percent of the total GDP accompanied with high requirement of investment has been widening the investment-saving gap every year at an alarming pace (MoF 2014/15). Nepalese economy moreover is the manifestation of an acute disguised unemployment and subsistence farming with limited prospects for mechanization, where foreign aid has continued to play a vital role in sustaining the economy.

The attainment of the target rate of growth would require certain minimum imports of expensive capital goods and raw materials. Nevertheless, due to excessive concentration

of exports on primary products and consumer goods leads to deficit in foreign exchange. This shortage of foreign exchange to finance the minimum import requirements of current production and investment called foreign exchange gap and trade gap is widening year by year. There is under utilization of domestic resources as human, natural resources, land etc. due to the presence of trade gap and saving gap which leads to the retardation of economic growth. Foreign aid can bridge these two gaps augmenting saving or relieving foreign exchange constraints so as the economy can reach to a point at which growth could become self-sustaining. As internal resource mobilization is very poor, Nepal's dependence upon foreign aid to finance development programs expected to increase over the coming year until the internal financing capability is substantially improved.

Foreign aid is the transfer of resources from one country to another in order to promote economic development as well as social progress. The fundamental idea of foreign aid is a transfer of resources on concessional terms. Official Development Assistance (ODA) has become most important source of external receipts for the developing countries. In order to qualify foreign aid, Development Assistance Committee (DAC) and Organization for Economic Cooperation and Development (OECD) have set three criteria. According to these criteria, the purpose of aid should be to promote economic development and welfare; it should be undertaken by official agencies; and it should have a grant element of 25% or more. These criteria of aid have the effect of excluding transfer of resources through international non-government organizations (INGOs) and aid for the military purpose. The economies of the least developed countries has been so marginalized that aid dependence of these countries is likely to persist well into the future. On the basis of its nature Foreign aid has been classified into three forms.

- i) Capital aid
- ii) Commodity aid, and
- iii) Technical aid.

Capital aid is provided in cash for the implementation of projects as well as for assistance for balance of payment and other reform programs. On the other hand, commodity aid is in the form of goods that usually takes the form of transfer of surplus

products of the donor to the recipient nations and technical aid included the training, technology-know-how, and transfer of technology from donor to recipient countries. The financial assistance is made either in the form of grant or loan. Grants are generally free launch, which not have repayment liability. Therefore, grants are appropriate to use in the social services as education, health, drinking water etc, which have very long gestation period. Loans, on the other hand have repayment liability. Since loans have repayment liability it should be wisely utilized in those sector that obtain returns in short run.

The continuity in the aid flows from the capable and developed to the weak and developing countries since the Second World War has stamped a distinct position in the global political and economic relations. However, the foreign aid originates its history dates back to the 17th century when Britain received aid from Holland, which continued even during the 18th century. But major attention after the " Marshall Plan " came into existence in 1947 to reconstruct war divested European economy which was prepared by American secretary of State George Marshall. It was only after the Second World War period, when a number of countries freed themselves from the colonial token that there was a need of economic assistance. This need was reinforced further by existing cold war situation leading to the evolution of a new international economic interdependence among the nation states. Flow of aid become more rapid due to polarization, which create the competing environment between America and then Soviet Union to gain support from other nations after the beginning of the cold war between USA led capitalist countries and then USSR led socialist countries, foreign aid became an integral part of foreign policy. During the cold war period and up to 1990, the motives of foreign aid are found to be idealism, generosity and international solidarity to political expediency, ideological confrontation and commercial self- interest.

Nepal started receiving foreign aid officially since 1951 with a 'Technical Co-operation Agreement' between Nepal and United States of America under the point four programs with the grant assistance of Rs. 22,000. Since then foreign aid began to flow over Nepal from bilateral as well as multilateral agencies. The strategic location of Nepal between India and China and its non-aligned friendly relations with all countries, including the

two superpowers helped to increase the volume of aid from 'Trickle' to 'Torrent' after 1956. After late 1970's Nepal has been receiving foreign aid mostly from Nepal aid group like Belgium, Canada, Denmark, France, Germany, Italy, Japan, Netherlands, Norway, Switzerland, Sweden, Saudi Arabia, United Kingdom, United States of America, and eight multilateral donors as World Bank, Asian Development Bank, International Monetary Fund, European Union, IFAD, OECD, UNDP etc.

1.2 Statement of the Problems

Most of the developing countries like Nepal are facing the vicious circle of poverty. To break down this circle, country needs to raise the income level of the people. This requires more capital and technical investment. Therefore, foreign assistance is important for developing countries to fulfill the resource gap. In Nepal, almost all the development projects are mostly operated directly and indirectly either from foreign loan or from foreign grant and low portion of internal revenue surplus is utilized in development projects.

Nepal is an agro-based country. Agriculture is the main sector, which provides employment about 73.9 % (CBS, 2008) of the population. The contribution of the agriculture sector to GDP is 32.12 percent (MoF, 2016). Also the agriculture is one of the major sectors receiving foreign aid. In stage of development, foreign aid plays an important role to fulfill the essential equipments such as machinery, fertilizer and improved technology as well as modern tools. However, the research questions of the study are –

- a) What is the trend of foreign aid in agricultural sector in Nepal?
- b) What is the role of foreign aid in agricultural development of Nepal?

1.3 Objectives of the Study

The general objective of the study is to analyse the effectiveness of foreign aid in the development process of agriculture sector. However, the study attempts to the following specific objectives:

- a. To show the trend of agricultural foreign aid in agriculture sector of Nepal.
- b. To analyze the role of agricultural foreign aid in agricultural GDP

1.4 Significance of the Study

Agriculture sector is the backbone of the Nepalese economy occupying a place of pride in the field of national income, livelihood employment, industrial development and international trade. However, agriculture as the main occupation is mostly unproductive. It is carried on in an old fashion with the absolute and outdated methods of production as a result. The yield from land is precariously low and peasants continue to live at a bare subsistence level. Hence to increase agricultural productivity foreign aid in the form of technical assistance as well as in the form of donation will be fruitful for our country. Foreign aid is also useful for developing various agricultural infrastructural such as irrigation, subsidy in fertilizer, improved seeds, agricultural marketing etc. Therefore Foreign aid in the process of agriculture development government should not hesitate to sign more aid if impact is positive. Hence, the study is helpful for the government, National planners, policy makers, researchers, teachers, students who are interested to know about the role of foreign aid in agriculture sector.

1.5 Hypothesis of the Study

Considering the objectives of the study, the following hypothesis has been tested:

H_0 : There is no relationship between Agricultural GDP and Foreign Aid in Nepal.

H_1 : Foreign Aid stimulates Agricultural GDP in Nepal.

1.6 Limitations of the Study

The study has following limitations:

- a) The study is based on only the secondary sources of data covering of 20 years from FY 1996/97 to 2015/16.
- b) This study has not cover the effect of foreign aid in industrial, political, social and other sectors except agricultural sector.
- c) The study could not be made as comprehensive as required due to time and budget constraints.

1.7 Organization of the Study

This study has been divided into five chapters. The first chapter is introduction that consists of background of the study, statement of the problem, objectives and hypothesis

of the study, significance, limitations and organization of the study. The second chapter is review of literature that is also divided into theoretical reviews, international and national context reviews of the study.

The third chapter is research methodology that deals with the research design, nature and sources of data, sample period covered method of data collection, data organization, management and processing, specification of models, specification of the variables, hypothesis testing, and tools and methods of data analysis. The fourth chapter is the data presentation and analysis which is the body part of the study. It contains trend of agricultural foreign aid and agricultural GDP in Nepal and role of agricultural foreign aid on agricultural GDP of Nepal, The fifth chapter is the major findings, conclusion and recommendations.

CHAPTER-II

REVIEW OF LITERATURE

A review of literature is an evaluative report of studies found in the literature related to our selected area. The review should describe, summarize, evaluate and clarify this literature. It should give a theoretical basis for the research and help you determine the nature of our own research. We should select a limited number of works that are central to our area rather than trying to collect a large number of works that are not as closely connected to our topic area. A literature review goes beyond the search for information and includes the identification and articulation of relationships between the literature and our field of research. The form of the literature review may vary with different types of studies. The basic purpose of literature review is to provide a context for the research, justify the research, ensure the research hasn't been done before (or that it is not just a "replication study"), show where the research fits into the existing body of knowledge, enable the researcher to learn from previous theory on the subject, illustrate how the subject has been studied previously, highlight flaws in previous research, outline gaps in previous research, show that the work is adding to the understanding and knowledge of the field, help refine, refocus or even change the topic.

2.1 Theoretical Review

Various economists have given different views and different models of economic growth of a country. Based on those views and models, the theoretical background of the model is presented below.

2.1.1 Harrod-Domar Growth Model

According to various theory in developing countries, foreign aid helps in promoting the economic growth of recipient country by supplementing limited domestic savings as well as foreign exchange constraints. The early literature of Chenery and Strout (1966), as cited in Girma (2015), has basis on the Harrod-Domar model of economic growth, has been important in this respect. Although the Harrod–Domar model was initially created to analyze the [business cycle](#), it was later adapted to explain economic growth. Its

implications were that growth depends on the quantity of labor and capital. Hence more investment leads to capital accumulation, which generates economic growth.

Harrod-Domar model has its implications in LDCs, where labor has plenty supply but [physical capital](#) is limited which results in slowing down economic growth. In [LDCs](#) the income of the people is low which results in low saving. As investment assumed to be equal to savings in the model, this implies that a poor country, with low savings, will have low investment and therefore low accumulation of physical-capital stock. The model implies that economic growth depends on policies to increase investment, by increasing saving, and using that investment more efficiently through technological advances. It is thus expected that a supplementation of domestic savings by foreign aid will resort to an increase in investment, and hence economic growth.

2.1.2 Solow Growth Model

Robert M Solow developed a growth model in 1956 A.D which is popularly known as Solow's growth model or Neo-Classical growth model. Solow introduced the possibility of some degree of substitutability between the factor inputs (labor and capital) which remove the rigidity assumption of Harrod-Domar growth model i.e. there is no substitution between labor and capital. Solow assumed that two factors labor and capital are involved in economic growth. Now the question may arise that, does none other factors are involved in growth process? To answer this question Solow decompose the growth in output into three components namely; labor, capital and total factor productivity The measurement of total factor productivity is generally referred to as the Solow residual. This term residual is appropriate because the estimate present the part of measured GDP growth that is not accounted by the weighted-average measured growth of the factors of production (capital and labor). To account for this, Solow used the Cobb-Douglas production function as follows:

$$Y=f(t, K, L)\dots\dots\dots(i)$$

Where,

t = technology

K= Capital

L= Labor

Solow stated the following equation on the basis of Cobb-Douglas production function

$$Y = t K^\alpha L^{1-\alpha} \dots \dots \dots (ii)$$

Here the Solow defines his other factor (total factor productivity) to be technology. Solow acknowledged the convenience of the Cobb-Douglas production function because it exhibits constant returns to scale which is consistent with his model. We should note that the variable ‘t’ is not constant but varies with different production functions based on the factors studied. Different authors have used different factors to account for the total factor productivity. In the following paragraph we consider an example to explain it.

To study impact of foreign aid on economic growth of Ethiopia Girma (2015) took the production model as

$$Y = f(t, K, L) \dots \dots \dots (iii)$$

Where, Y is real GDP, t is total factor productivity, L and K are labor and capital inputs respectively. The ‘t’ value is determined by various factors in case of Ethiopia. Therefore he developed a relationship as

$$\ln \text{RGDP}_t = \beta_1 + \beta_2 \ln \text{LF}_t + \beta_3 \ln \text{A}_t + \beta_4 \ln \text{H}_t + \beta_5 \ln \text{A}_t * \ln \text{PINDEX}_t + \beta_6 \ln \text{PINV}_t + \beta_7 \ln \text{MEANR}_t + \beta_8 \ln \text{M}_t / \text{RGDP}_t + U_t \dots \dots \dots (iv) \quad (\text{Girma, 2015})$$

Where,

$\ln \text{RGDP}_t$: natural logarithm of real GDP used as a proxy for national income at year t.

$\ln \text{LF}_t$: natural logarithm of percentage of total labor force to total population ratio taken at year t.

$\ln \text{A}_t$: natural logarithm of percentage of foreign aid to RGDP ratio at year t.

$\ln \text{H}_t$: natural logarithm of the sum of secondary and tertiary gross enrolment ratio used as proxy variable for Human capital at year t.

$\ln \text{A}_t * \ln \text{pindex}_t$: natural logarithm of foreign aid interacted by natural logarithm of policy index at year t.

$\ln \text{MEANR}_t$: natural logarithm of mean annual rain fall at year t.

$\ln \text{M}_t / \text{RGDP}_t$: natural logarithm of broad money supply to RGDP ratio at year t (financial deepening).

β 's are elasticity and U_t is white error term.

2.2 International Context

Islam (2011) stated that over the years, the share of agriculture in GDP in low income countries has declined, which meant that the share of agriculture in aid may have declined across countries and over time. Although not conclusive, it would appear that on

the basis of the data, donors might consider the share of agriculture and public expenditures as a share of GDP to allocate aid to agriculture. Overall, the author points out that the donors are increasingly providing assistance to build or improve institutions and human capital so that they can implement agricultural programs effectively. Therefore it is necessary to examine the decline in aid to agriculture in the context of assistance to institution building so that national and local governments and agricultural agencies can design, experiment and select projects that suit the local circumstances.

WRBR (2011) analyzed that it is important to note that until recently when oil became a major source of national revenue, besides the fact that its economy has been essentially agric base, agricultural sector has remained a significant contributor to the Nigeria economy, especially in terms of employment generation and national output. The research finding reveals that there is a positive relationship between Gross Domestic Product (GDP), and the three independent variables (Domestic Saving, Government Expenditure on Agriculture and Foreign Direct Investment on Agriculture). Despite these laudable efforts, Nigeria's agricultural sector is still characterized by low yields, attributable to the use of crude implements, a low level of inputs and limited areas under cultivation, among others. This development created unwarranted situation that led to poor output of crops and livestock which hitherto served as foreign exchange earnings for the country, factors such as environment degradation, desertification and global warming contribute to poor forestry development and crops production, similarly the findings confirm the positive development witness by the agricultural sector is developing rapidly making the sub sector production very vibrant in the economy. The relative progress have been attributed to the country's constant policy reviews, emphasis placed on agriculture by international community, and technical assistance by such organizations as FAO, the United Nation Millennium Development Goals (MDGs), and collaboration with country like China. While it's expected that after all these years agricultural sector should have been the major contributor to Nigeria's economy development as it was in the 1960s, its general impact on the country's development process has left much to be desired.

Alabi (2014) suggested that foreign agricultural aid has a positive and significant impact on agricultural GDP and agricultural productivity at the 10% significance level. His results also show that disaster/conflict have a positive and significant impact on aid

receipts at the 5% significance level, implying that aid responds to disaster and conflicts in the region. The transparency index has a positive but non-significant relationship with foreign agricultural aid, agricultural GDP, and agricultural productivity, but the governance index has a positive and significant relationship with agricultural productivity at the 10% significance level. The study also reveals that bilateral foreign agricultural aid influences agricultural productivity more than multilateral foreign agricultural aid, while multilateral foreign agricultural aid influences agricultural GDP more than bilateral foreign agricultural aid. This means that while bilateral agricultural aid can be more influential for agricultural productivity, multilateral aid can have greater influence on agriculture's contribution to the economy than the bilateral agriculture aid. This finding may indicate that it is not only the amount of aid that can influence agriculture, but that the nature, origin, and purpose of the aid can be important in measuring its impact. The governance index coefficient is not significant in the bilateral agricultural aid equation, but it is significant in the multilateral agricultural aid equation, which implies that issues of governance may be more of importance for the receipt of multilateral aid.

Randhawa (2008) concluded that a large inflow of foreign aid is neither feasible nor desirable for LDCs. Foreign aid provide crucial support to the development plans, but the developed countries are not ready to supply aid to the extent required by the less developed. So India and other developed countries should make tremendous efforts to boost their exports so that in a decade or so they have a trade surplus. Expansion of exports is also essential to pay for increasing imports. Larger exports are needed for debt service repayment. But the policy for that favors trade and not aid successful only if there is increase in domestic savings equal to the rise in export earnings. Trade will substitute for aid when larger export earning raise national income and this lead to increase saving. In fact, greater trade opportunities are like greater aid flows. However, countries that are in the early phase of development should not think of substituting trade for aid because they can only develop their trade through aid over the long run. Although greater trade possibilities for such countries have some resource element in them, they are more complementary to aid flow then substitutable for them. Development requires trade and aid.

Soesastor (2004) concluded that foreign aid in East Asia has a history of over half a century. It has become an important feature of economic development in the region perhaps since the early 1970s when countries in Southeast Asia began to step up their development efforts. They have been inspired by the achievements made by their Northeast Asian neighbors, Japan, South Korea, Chinese Taipei, and Hong Kong. Many of these countries have made use of foreign aid in their development. Japan, for instance, drew on funding from the World Bank from 1953 to 1966. South Korea and Chinese Taipei received substantially large sums of aid from the United States during the Cold War. They all benefited from the development of large economic infrastructures, such as roads, ports, power generation, as well as irrigation, financed to a large extent by foreign aid. This had helped to create the foundation for economic take-off as those economic infrastructures stimulated and facilitated large investments in resources extraction, industrial production activities, and exports. Since 1951 Western countries have given developing countries more than US\$ 1 trillion in development assistance, including humanitarian aid. He further added that the recipients and donors understood that foreign aid should be seen only as a supplement to the recipient's own efforts.

Kosack & Tobin (2006) concluded that many believe that the key to development is increased FDI. They show both theoretically and statistically that this belief is invalid, or, at the least, that it needs qualification. In their model, FDI's impact is conditional on development: in the aggregate, FDI probably has no effect on economic growth, and it has no effect on human development in more highly developed countries. But in countries without extensive human capital, FDI can actually slow the rate of human development. If countries at low levels of development are being harmed by increased inflows of FDI, then substituting investment incentives for aid should not be a priority of wealthy countries. Instead, the development community should discourage policies that make poor countries attractive to FDI that is potentially exploitative. Aid also has a conditional relationship with economic growth and with human development. They find that in countries with extremely low levels of human capital, aid, like FDI, works against development. But once a country reaches even a minimal level of human capital, aid contributes powerfully to both higher growth and faster human development, and that effect grows stronger as a country becomes more developed.

Eroglu (2000) explained that effectiveness of aid depends largely upon both the donor and recipient motives and how these may be aligned or conflicting with the objectives of aid. This is also depends on the extent to which aid is tied to capital projects rather than being disbursed in forms such as food aid, balance of payments support and debt relief which do not necessarily have any development component at all. Whether the recipient uses aid to increase savings and investment rather than switch aid resources to consumption and other nonproductive purposes, also determine the effectiveness of aid. However, evidence shows that donor countries are increasing aid tying. This is, of course, in the best of interest of the donor country as opposed to the poverty stricken recipient country. It does not serve to increase growth in LDC's but has an adverse effect on growth, employment and the balance of payments. Thus, it is suggested that donor countries must avoid tying of aid, especially joint tying by source and by commodity as it leads to monopolistic exploitation. Finally, it is argued that the amount of aid should be increased. However, in the light of the conflicting motives of donors and recipients, it is not likely that such an increase will alleviate poverty. Since the beginning of the Gulf crises the international community has been asking for more aid to the countries like Ethiopia, where crop failure and famine are having drastic effects on the poor. However, due to political motivations more aid has been directed towards Egypt and Israel for their political support of the crises. Hence, unless the reforms outlined before take place, any increase in the amount of aid will not necessarily have a notable effect on the LDC's.

Girma (2015) analysed that relationship between foreign aid and economic growth and found the negative contribution of foreign aid on RGDP growth both in short run and long run period in Ethiopia disproving the first hypothesis of the study. In the longrun and short run on average, a one percentage increase in the aid-to-RGDP ratio leads to a decrease in RGDP growth by about 0.65 % and 0.28% respectively, other variables being constant. Foreign aid interacted with policy index has positive coefficient showing that the effectiveness of aid depends on macroeconomic policy.

Norton Ortiz & Pardey (1992) concluded that foreign assistance to agriculture takes many forms and is intended to accomplish a variety of economic, political, and humanitarian objectives. Donors and recipients alike have a vested interest in the economic effectiveness of agricultural aid. The results of this study indicate that such aid, since

1970, has improved agricultural productivity in the Middle East and Latin America. The study also indicate that aid has been effective in countries with high levels of external debt or sizable fiscal deficits and researcher stated that this may perhaps when the debt was incurred, it resulted in investment in the agriculture sector, complementing the foreign aid. Additional results suggest that aid effectiveness did not vary by income level of the country or by the relative importance of the agricultural sector.

2.3 National Context

Bhattarai (2009) analyzed the effectiveness of aid in Nepal using cointegration and error correction mechanism to investigate the impact of aid on per capita real GDP. The result showed that aid is positively related to per capita real GDP in the long run. The channel through which aid affects GDP is technological progress. That is, aid helps to upgrade technology by helping import capital goods. Aid in the form of technical assistance also improves Nepal's institutional capacity. However, in the short run the impact of aid is negative. This could be due to problems associated with absorptive capacity, aid management, coordination and allocation, and aid conditionality. It is also concluded that aid effectiveness improves in the presence of good policies in the long-run. Nepal's policy environment improved significantly since the mid 1980s when it implemented various Structural Adjustment Programs. Aid is found to be more effective during these period.

Basnet (2006) concluded that achievements made in agriculture development in the past have not been much satisfactory. Despite the top priority accorded to agriculture sector, it has not developed as expected. His analysis suggest that inadequate diffusion of investment within the agriculture sector in the absence of proper prioritization and insufficient availability of production materials in the market due to weak sectoral policies related to agriculture have mainly been responsible for the failure of significantly increase agricultural production and productivity. Similarly the average annual production and productivity of agriculture sector is increasing with the increment of investment in this sector however it is not satisfactory. Agriculture is carried on in an old fashion with the obsolete and outdated methods of production as a result; the yield from land is low. The major finding of this study is there is significant positive relationship

between foreign aid and agricultural GDP. The comparison is made before and after the restoration of democracy (1978/79-1989/90) and (1990/91-2002/03) and found that elasticity of aid is higher in post 1990 than prior 1990. This implies that productivity and utilization of foreign aid is better after the liberalization than prior to liberalization.

Karna (2004) analyzed the past development efforts on agriculture development and current status of development in Nepal. The author has mainly focused on the problem and prospects of agricultural development in Nepal. There are different types of problem on agriculture development in Nepal like, lack of irrigation facility, lack of scientific land reform, lack of chemical fertilizer and improved seeds, lack of credit facility etc. Despite of these problems Nepal has tremendous possibility of increasing agriculture production three to four fold by developing animal husbandry of various types, horticulture, vegetable and food crops farming. According to author, agriculture is the important strategic areas of overall economic significance. Therefore, the economy establishes a strong link with both domestic and foreign sectors, and acts as the source of income for poor through employment and food supply provision, the central issue has been how to make this sector commercially attractive, economically viable and competitive.

Poudel (2006) concluded that a substantial portion of Nepal's development expenditure is met by foreign aid. The foreign aid policy of HMG/Nepal is committed to improving disbursement of foreign aid through various ways. The policy has also emphasized that foreign aid would be considered as an additional to domestic resources to accelerate growth and poverty reduction. Nepal's various periodical plan absorbed the larger volume of foreign aid. The development expenditure in each periodic plan was heavily financed by foreign aid as high between 44.0 percent and 77.0 percent. The total aid to Nepal up to in 2003/04 levelled to Rs. 235498.95 million. The aid absorptive capacity of Nepal is found to be unpredictable. The volatile characteristics of absorptive capacity of foreign aid to Nepal suggest that this was due to delay in factors emanating from diverse channels. The complicated procedures in finalizing things, difficulty in timely procurement of equipments and components, findings suitable contractors, internal disturbances and administrative inefficiency appear to be the major hurdles in the timely completion of the foreign aided projects. In addition, the priorities of donors, their interest and complexities have also been attributed to low absorptive capacity of aid in

Nepal. The socio-economic sector succeeded in attracting large amount of foreign aid in Nepal. The transport, power, communication, agriculture, irrigation, and forestry sectors attracted considerable amount of foreign aid in the past followed by industry, commerce and social services sector. Some have argued that poverty is not a major concern of foreign aid flow to Nepal, but politics and political strategic considerations have been the major determining factor. Empirical findings reveal that the role of foreign aid in GDP is positive and similarly role of agricultural aid to agriculture GDP is positive.

Adhikari (2015) studied about the contribution of domestic savings, government expenditure on agriculture and foreign direct investment on agriculture to the national economy which reveals that these variables jointly contribute significantly thereby indicating the models goodness of fit. The study shows that government expenditure on agriculture is crucial for the GDP indicating per unit expenditure on agriculture could contribute more than 101 units to the GDP on the basis of analysis of data in the model tested. However, the government budget allocation to expenditure on agriculture is not that much interesting, receiving around 3 percent of the national budget thereby creating pressure to the ever increasing demands of farmers. The annual budget growth rate of MoAD was found to be 22.74 % which is slightly higher than that of National budget. However, to satisfy the ever increasing demand of farmers to the service delivery, it is not sufficient.

Khadka (1997) has analyzed the foreign aid and foreign policy of Nepal and influence of major power on Nepalese politico-economic scenario very clearly and sophisticatedly. He has addressed the foreign policy aspect of foreign aid in Nepal where people have been associating foreign aid with generosity and humanitarianism on the part of donors. He has focused that the foreign aid and foreign policy of major powers USA , India, China and the Soviet Union during *Panchayat* years 1961-1990 and after 1990 which is based on both primary and secondary sources of information. He found the impact of aid on growth, investment and saving has failed to produce desired result on the recipients' economy. The agriculture sector of Nepal grew only by 1.1 percent for below the population growth rate between 1965 to 1980 and 4.5 % during 1980/89. Foreign aid was conceived as an investment of foreign policy around the time when the cold war hostility between USSR and US. Economically, Nepal benefited from India's aid but not

politically. Nepal has been successful in tapping a substantial amount of aid which is one indicator of the success of the foreign economic policy of economic diversification. He has recommended that the consistent and enduring development policy over a long period of time should be formulated by identifying the exact role of aid by taking in to consideration factors such as the capacity to absorb aid and sustain its benefits effectively, creation of aid benefits and their distribution and recipients efforts toward self-reliance within a reasonable period of time.

Acharya (2002) analyzed the country assistance strategies of major donors and also the foreign aid policy of government. He found that foreign aid has been covering as much as 57 % (1996/97), 61.1 % (1990) and 55.2 % (2000/01) of the government's annual development expenditure. Out of total disbursement of foreign aid, the share of loans has continuously been on the increasing. It increased from 28.9 % in 1975/76 to 72.8 % in 1995/96 and again started to fall to 67.4 % in 2000/01. Among multilateral donors, IDA has been the single largest, followed by the ADB and the UN system. Among bilateral donors Japan tops the list. Nepal's infrastructure has been the main beneficiary of foreign aid. Agriculture has been receiving a declining share whereas social service sectors have been allocated more in recent years. Foreign aid has perpetuated economic and social dualism in Nepal. Corruption, political interference in bureaucratic functioning, an effective monitoring system, donor's own strategic interests, and lack of commitment from government are the major reasons for the ineffectiveness of foreign aid in Nepal. He has recommended that vision and ways of aid utilization should be thought out by both donors and recipient countries. He also added that the recipient country should improve and enhance project management efficiency and should control corruption.

Budhathoki (2001) has analyzed the role of foreign aid in agriculture sector. This study has focused on source, structure and contribution of foreign aid in the Nepalese economy. The main interesting part of this study is that it has been analyzed, compared by dividing period of time into before restoration of democracy and after restoration of democracy of 1990. This study has compared development activities according to democracy and politico-economic situation. He finds that the foreign aid commitment in the agriculture sector has decreased by 7.9 % after the ten years of 1990 in comparison to the ten years before 1990. The total amount of foreign aid in the agriculture sector has increased more

than two times (2.8 fold) after the 1990 in comparison to ten years before 1990. The amount of foreign aid to agriculture sector during the period 1980 to 2000 has cumulated to Rs. 39465.4 million. Average annual production and productivity of agriculture sector is increasing with the increment of investment in this sector however it is not satisfactory. Agriculture development is almost depending on foreign aid. Hence he concludes that after an analysis of 20 years, the role of foreign aid in agriculture sector remained positive.

Sapkota (2005) found that the foreign aid has started to flow in various sector of economy systematically into Nepal right from 1951/52. There has been many fold increase in the quantum of aid flows into Nepal. During the period of 1951/52 to 1999/2000, there has been some improvement in the physical and socio-economic indicators of Nepal. Foreign aid has various beneficiaries sectors among which agriculture sector is one of them. During the period 1980/2000, the amount of foreign aid to agriculture sector has cumulated to Rs 39465.4 million. Donors are gradually pushing Nepal to replace grant by concessional loan and concessional loans by commercial loans after the liberalization in 1990. Our agriculture sector has not remained far from this liberalization in 1990. After 1990, the amount of grants has cumulated to Rs 6948.6 million while loan has cumulated to Rs 30556.8 million during the period 1990 to 2000. During the period 2000 to 2003, it was Rs 1946.8 million and 721.7 million respectively. However, increment in average annual production and productivity in agriculture sector compared to increment of investment is not satisfactory.

Sigdel (2004) has mentioned that foreign aid is one of the most original political and economic phenomena of the twentieth century and it has become a foundation to North-South relation which emerged as one of the principle levers for the globalization of social policies. The required data has been collected and analyzed since 1981/82 to 2001/02. A simple non-linear regression model has been estimated using OLS method to find out the role of foreign aid to mitigate ever-growing resource gap of Nepal. The result reflects that there is a significant relationship between resource gap and foreign aid during twenty-one years. The flow of foreign aid in Nepal has been faster than increase in resource gap. The D- W test, which is also nearly 2 percent, indicates the significant of foreign aid to mitigate ever growing resource gap. The foreign aid supplements more than 60 percent of

the total resource gap and the remaining are met by remittance and foreign currencies earned from tourism sector. The author further recommended that Nepal should proceed higher economic growth by using own resources on a sustainable basis. Public investment should be directed towards improving infrastructure that would promote private sector investment and thereby economic growth.

From the above review, it can be inferred that most of the study examined the effects of aid on growth through OLS technique which only shows the short run impact of aid on economic growth. However, this study uses the time series techniques of cointegration through ARDL approach of long run analysis. This is also the more appropriate technique to detect the effectiveness of aid via short run dynamics and long run linkages.

CHAPTER-I

INTRODUCTION

1.6 Background of the Study

Nepal is a landlocked and developing country between two neighboring economic powers, India to the south and China to the North. After the restoration of democracy, Nepal introduced into the outside world. Agriculture is the main sector which provides employment about 73.9 % (CBS, 2008) of the population. The contribution of the agriculture sector to GDP is 32.12 percent in 2014/15 (MoF, 2016) with existence of huge disguised unemployment and high incidence of poverty in this sector. The population of Nepal is 268 million and the average population growth rate is 1.35 percent per annum (CBS, 2011). About 21.6 percent people are below the poverty line (NPC, 2016). Nepal low growth economy with a lower per capita income in the SAARC region, where economic growth rate is 0.9 percent and per capita income US \$ 752 (MoF, 2016).

Rice and wheat are the main food crops with a population of about 25 million. The average population growth is about 1.35% per annum (CBS, 2011). About 23.8% of the Nepalese population are below the poverty line although human development indicator remains unsatisfactory. Nepal ranked 146 out of 188 countries on the human development index in 2015 (UN, 2016).

Nepalese economy is passing through structural changes. Contribution of agricultural and industry sectors to GDP has continued to decline while that of services sector is increasing. On classification of GDP into agriculture and non-agriculture sectors, contribution of agriculture sector to GDP has been gradually declining while that of non-agriculture sector has continued to rise. Contribution of agriculture sector to real GDP in FY 2000/01, which stood at 36.6 percent has come down to 33.1 percent in the FY 2014/15. Likewise, contribution of the non-agriculture has grown from 63.4 percent to 66.9 percent during the same period (MoF, 2015).

Agriculture sector is the backbone of the Nepalese economy occupying a place of pride in the field of National income, livelihood employment, industrial development and international trade. However, agriculture as the main occupation is mostly unproductive. It is carried on in an old fashion with the absolute and outdated methods of production as a result. The yield from land is precariously low and peasants continue to live at a bare subsistence level. Overcrowding and consequent pressure of population on land has led to sub-division and fragmentation of holding, declined in the area of land per capita, disguised unemployment and marginal productivity of labour zero or even negative. It is attributed to low ratio of land to labour, inferior soil outdated technology insufficient land use pattern, small amount of capital in use etc. It is obvious that not much can be achieved unless pressure of population on land is reduced and market-oriented approach and commercialisation process are initiated.

The Agricultural Perspective Plan (APP) on the Tenth Plan focused on commercialisation and diversification of the agriculture by cultivating higher value crops and creating conducive environment for the participation of private sector and reducing poverty by increasing agriculture production and employment opportunities (NPC, 2002). Considering the fundamental aspects of agriculture development, the basic feature of plan formation, implementation and monitoring process requires the huge amount of expenditure which is impossible through the national saving that is possible only either taking loan or receiving aid by major donors in the present situation of Nepalese economy.

The Nepalese economy, at present is passing through the critical phase of low-level equilibrium trap circumscribed by low rate of internal revenue mobilization, huge budgetary deficits, poverty and stagnation. Very low rate of saving only about 10.9 percent of the total GDP accompanied with high requirement of investment has been widening the investment-saving gap every year at an alarming pace (MoF 2014/15). Nepalese economy moreover is the manifestation of an acute disguised unemployment and subsistence farming with limited prospects for mechanization, where foreign aid has continued to play a vital role in sustaining the economy.

The attainment of the target rate of growth would require certain minimum imports of expensive capital goods and raw materials. Nevertheless, due to excessive concentration of exports on primary products and consumer goods leads to deficit in foreign exchange. This shortage of foreign exchange to finance the minimum import requirements of current production and investment called foreign exchange gap and trade gap is widening year by year. There is under utilization of domestic resources as human, natural resources, land etc. due to the presence of trade gap and saving gap which leads to the retardation of economic growth. Foreign aid can bridge these two gaps augmenting saving or relieving foreign exchange constraints so as the economy can reach to a point at which growth could become self-sustaining. As internal resource mobilization is very poor, Nepal's dependence upon foreign aid to finance development programs expected to increase over the coming year until the internal financing capability is substantially improved.

Foreign aid is the transfer of resources from one country to another in order to promote economic development as well as social progress. The fundamental idea of foreign aid is a transfer of resources on concessional terms. Official Development Assistance (ODA) has become most important source of external receipts for the developing countries. In order to qualify foreign aid, Development Assistance Committee (DAC) and Organization for Economic Cooperation and Development (OECD) have set three criteria. According to these criteria, the purpose of aid should be to promote economic development and welfare; it should be undertaken by official agencies; and it should have a grant element of 25% or more. These criteria of aid have the effect of excluding transfer of resources through international non-government organizations (INGOs) and aid for the military purpose. The economies of the least developed countries has been so marginalized that aid dependence of these countries is likely to persist well into the future. On the basis of its nature Foreign aid has been classified into three forms.

- iv) Capital aid
- v) Commodity aid, and
- vi) Technical aid.

Capital aid is provided in cash for the implementation of projects as well as for assistance for balance of payment and other reform programs. On the other hand, commodity aid is in the form of goods that usually takes the form of transfer of surplus products of the donor to the recipient nations and technical aid included the training, technology-know-how, and transfer of technology from donor to recipient countries. The financial assistance is made either in the form of grant or loan. Grants are generally free launch, which not have repayment liability. Therefore, grants are appropriate to use in the social services as education, health, drinking water etc, which have very long gestation period. Loans, on the other hand have repayment liability. Since loans have repayment liability it should be wisely utilized in those sector that obtain returns in short run.

The continuity in the aid flows from the capable and developed to the weak and developing countries since the Second World War has stamped a distinct position in the global political and economic relations. However, the foreign aid originates its history dates back to the 17th century when Britain received aid from Holland, which continued even during the 18th century. But major attention after the " Marshall Plan " came into existence in 1947 to reconstruct war divested European economy which was prepared by American secretary of State George Marshall. It was only after the Second World War period, when a number of countries freed themselves from the colonial token that there was a need of economic assistance. This need was reinforced further by existing cold war situation leading to the evolution of a new international economic interdependence among the nation states. Flow of aid become more rapid due to polarization, which create the competing environment between America and then Soviet Union to gain support from other nations after the beginning of the cold war between USA led capitalist countries and then USSR led socialist countries, foreign aid became an integral part of foreign policy. During the cold war period and up to 1990, the motives of foreign aid are found to be idealism, generosity and international solidarity to political expediency, ideological confrontation and commercial self- interest.

Nepal started receiving foreign aid officially since 1951 with a 'Technical Co-operation Agreement' between Nepal and United States of America under the point four programs

with the grant assistance of Rs. 22,000. Since then foreign aid began to flow over Nepal from bilateral as well as multilateral agencies. The strategic location of Nepal between India and China and its non-aligned friendly relations with all countries, including the two superpowers helped to increase the volume of aid from 'Trickle' to 'Torrent' after 1956. After late 1970's Nepal has been receiving foreign aid mostly from Nepal aid group like Belgium, Canada, Denmark, France, Germany, Italy, Japan, Netherlands, Norway, Switzerland, Sweden, Saudi Arabia, United Kingdom, United States of America, and eight multilateral donors as World Bank, Asian Development Bank, International Monetary Fund, European Union, IFAD, OECD, UNDP etc.

1.7 Statement of the Problems

Most of the developing countries like Nepal are facing the vicious circle of poverty. To break down this circle, country needs to raise the income level of the people. This requires more capital and technical investment. Therefore, foreign assistance is important for developing countries to fulfill the resource gap. In Nepal, almost all the development projects are mostly operated directly and indirectly either from foreign loan or from foreign grant and low portion of internal revenue surplus is utilized in development projects.

Nepal is an agro-based country. Agriculture is the main sector, which provides employment about 73.9 % (CBS, 2008) of the population. The contribution of the agriculture sector to GDP is 32.12 percent (MoF, 2016). Also the agriculture is one of the major sectors receiving foreign aid. In stage of development, foreign aid plays an important role to fulfill the essential equipments such as machinery, fertilizer and improved technology as well as modern tools. However, the research questions of the study are –

- c) What is the trend of foreign aid in agricultural sector in Nepal?
- d) What is the role of foreign aid in agricultural development of Nepal?

1.8 Objectives of the Study

The general objective of the study is to analyse the effectiveness of foreign aid in the development process of agriculture sector. However, the study attempts to the following specific objectives:

- c. To show the trend of agricultural foreign aid in agriculture sector of Nepal.
- d. To analyze the role of agricultural foreign aid in agricultural GDP

1.9 Significance of the Study

Agriculture sector is the backbone of the Nepalese economy occupying a place of pride in the field of national income, livelihood employment, industrial development and international trade. However, agriculture as the main occupation is mostly unproductive. It is carried on in an old fashion with the absolute and outdated methods of production as a result. The yield from land is precariously low and peasants continue to live at a bare subsistence level. Hence to increase agricultural productivity foreign aid in the form of technical assistance as well as in the form of donation will be fruitful for our country. Foreign aid is also useful for developing various agricultural infrastructural such as irrigation, subsidy in fertilizer, improved seeds, agricultural marketing etc. Therefore Foreign aid in the process of agriculture development government should not hesitate to sign more aid if impact is positive. Hence, the study is helpful for the government, National planners, policy makers, researchers, teachers, students who are interested to know about the role of foreign aid in agriculture sector.

1.10 Hypothesis of the Study

Considering the objectives of the study, the following hypothesis has been tested:

H_0 : There is no relationship between Agricultural GDP and Foreign Aid in Nepal.

H_1 : Foreign Aid stimulates Agricultural GDP in Nepal.

1.6 Limitations of the Study

The study has following limitations:

- d) The study is based on only the secondary sources of data covering of 20 years from FY 1996/97 to 2015/16.
- e) This study has not cover the effect of foreign aid in industrial, political, social and other sectors except agricultural sector.
- f) The study could not be made as comprehensive as required due to time and budget constraints.

1.7 Organization of the Study

This study has been divided into five chapters. The first chapter is introduction that consists of background of the study, statement of the problem, objectives and hypothesis of the study, significance, limitations and organization of the study. The second chapter is review of literature that is also divided into theoretical reviews, international and national context reviews of the study.

The third chapter is research methodology that deals with the research design, nature and sources of data, sample period covered method of data collection, data organization, management and processing, specification of models, specification of the variables, hypothesis testing, and tools and methods of data analysis. The fourth chapter is the data presentation and analysis which is the body part of the study. It contains trend of agricultural foreign aid and agricultural GDP in Nepal and role of agricultural foreign aid on agricultural GDP of Nepal, The fifth chapter is the major findings, conclusion and recommendations.

CHAPTER-II

REVIEW OF LITERATURE

A review of literature is an evaluative report of studies found in the literature related to our selected area. The review should describe, summarize, evaluate and clarify this literature. It should give a theoretical basis for the research and help you determine the nature of our own research. We should select a limited number of works that are central to our area rather than trying to collect a large number of works that are not as closely connected to our topic area. A literature review goes beyond the search for information and includes the identification and articulation of relationships between the literature and our field of research. The form of the literature review may vary with different types of studies. The basic purpose of literature review is to provide a context for the research, justify the research, ensure the research hasn't been done before (or that it is not just a "replication study"), show where the research fits into the existing body of knowledge, enable the researcher to learn from previous theory on the subject, illustrate how the subject has been studied previously, highlight flaws in previous research, outline gaps in previous research, show that the work is adding to the understanding and knowledge of the field, help refine, refocus or even change the topic.

2.1 Theoretical Review

Various economists have given different views and different models of economic growth of a country. Based on those views and models, the theoretical background of the model is presented below.

2.1.1 Harrod-Domar Growth Model

According to various theory in developing countries, foreign aid helps in promoting the economic growth of recipient country by supplementing limited domestic savings as well as foreign exchange constraints. The early literature of Chenery and Strout (1966), as cited in Girma (2015), has basis on the Harrod-Domar model of economic growth, has

been important in this respect. Although the Harrod–Domar model was initially created to analyze the [business cycle](#), it was later adapted to explain economic growth. Its implications were that growth depends on the quantity of labor and capital. Hence more investment leads to capital accumulation, which generates economic growth.

Harrod-Domar model has its implications in LDCs, where labor has plenty supply but [physical capital](#) is limited which results in slowing down economic growth. In [LDCs](#) the income of the people is low which results in low saving. As investment assumed to be equal to savings in the model, this implies that a poor country, with low savings, will have low investment and therefore low accumulation of physical-capital stock. The model implies that economic growth depends on policies to increase investment, by increasing saving, and using that investment more efficiently through technological advances. It is thus expected that a supplementation of domestic savings by foreign aid will resort to an increase in investment, and hence economic growth.

2.1.2 Solow Growth Model

Robert M Solow developed a growth model in 1956 A.D which is popularly known as Solow’s growth model or Neo-Classical growth model. Solow introduced the possibility of some degree of substitutability between the factor inputs (labor and capital) which remove the rigidity assumption of Harrod-Domar growth model i.e. there is no substitution between labor and capital. Solow assumed that two factors labor and capital are involved in economic growth. Now the question may arise that, does none other factors are involved in growth process? To answer this question Solow decompose the growth in output into three components namely; labor, capital and total factor productivity The measurement of total factor productivity is generally referred to as the Solow residual. This term residual is appropriate because the estimate present the part of measured GDP growth that is not accounted by the weighted-average measured growth of the factors of production (capital and labor). To account for this, Solow used the Cobb-Douglas production function as follows:

$$Y=f(t, K, L).....(i)$$

Where,

t = technology

K= Capital

L= Labor

Solow stated the following equation on the basis of Cobb-Douglas production function

$$Y = t K^\alpha L^{1-\alpha} \dots \dots \dots (ii)$$

Here the Solow defines his other factor (total factor productivity) to be technology. Solow acknowledged the convenience of the Cobb-Douglas production function because it exhibits constant returns to scale which is consistent with his model. We should note that the variable 't' is not constant but varies with different production functions based on the factors studied. Different authors have used different factors to account for the total factor productivity. In the following paragraph we consider an example to explain it.

To study impact of foreign aid on economic growth of Ethiopia Girma (2015) took the production model as

$$Y = f(t, K, L) \dots \dots \dots (iii)$$

Where, Y is real GDP, t is total factor productivity, L and K are labor and capital inputs respectively. The 't' value is determined by various factors in case of Ethiopia. Therefore he developed a relationship as

$$\ln \text{RGDP}_t = \beta_1 + \beta_2 \ln \text{LF}_t + \beta_3 \ln \text{A}_t + \beta_4 \ln \text{H}_t + \beta_5 \ln \text{A}_t * \ln \text{PINDEX}_t + \beta_6 \ln \text{PINV}_t + \beta_7 \ln \text{MEANR}_t + \beta_8 \ln \text{M}_t / \text{RGDP}_t + U_t \dots \dots \dots (iv) \quad (\text{Girma, 2015})$$

Where,

$\ln \text{RGDP}_t$: natural logarithm of real GDP used as a proxy for national income at year t.

$\ln \text{LF}_t$: natural logarithm of percentage of total labor force to total population ratio taken at year t.

$\ln \text{A}_t$: natural logarithm of percentage of foreign aid to RGDP ratio at year t.

$\ln \text{H}_t$: natural logarithm of the sum of secondary and tertiary gross enrolment ratio used as proxy variable for Human capital at year t.

$\ln \text{A}_t * \ln \text{pindex}_t$: natural logarithm of foreign aid interacted by natural logarithm of policy index at year t.

$\ln \text{MEANR}_t$: natural logarithm of mean annual rain fall at year t.

$\ln \text{M}_t / \text{RGDP}_t$: natural logarithm of broad money supply to RGDP ratio at year t (financial deepening).

β 's are elasticity and U_t is white error term.

2.2 International Context

Islam (2011) stated that over the years, the share of agriculture in GDP in low income countries has declined, which meant that the share of agriculture in aid may have declined across countries and over time. Although not conclusive, it would appear that on the basis of the data, donors might consider the share of agriculture and public expenditures as a share of GDP to allocate aid to agriculture. Overall, the author points out that the donors are increasingly providing assistance to build or improve institutions and human capital so that they can implement agricultural programs effectively. Therefore it is necessary to examine the decline in aid to agriculture in the context of assistance to institution building so that national and local governments and agricultural agencies can design, experiment and select projects that suit the local circumstances.

WRBR (2011) analyzed that it is important to note that until recently when oil became a major source of national revenue, besides the fact that its economy has been essentially agric base, agricultural sector has remained a significant contributor to the Nigeria economy, especially in terms of employment generation and national output. The research finding reveals that there is a positive relationship between Gross Domestic Product (GDP), and the three independent variables (Domestic Saving, Government Expenditure on Agriculture and Foreign Direct Investment on Agriculture). Despite these laudable efforts, Nigeria's agricultural sector is still characterized by low yields, attributable to the use of crude implements, a low level of inputs and limited areas under cultivation, among others. This development created unwarranted situation that led to poor output of crops and livestock which hitherto served as foreign exchange earnings for the country, factors such as environment degradation, desertification and global warming contribute to poor forestry development and crops production, similarly the findings confirm the positive development witness by the agricultural sector is developing rapidly making the sub sector production very vibrant in the economy. The relative progress have been attributed to the country's constant policy reviews, emphasis placed on agriculture by international community, and technical assistance by such organizations as FAO, the United Nation Millennium Development Goals (MDGs), and collaboration with country like China. While it's expected that after all these years agricultural sector should have been the major contributor to Nigeria's economy development as it was in the 1960s, its general impact on the country's development process has left much to be desired.

Alabi (2014) suggested that foreign agricultural aid has a positive and significant impact on agricultural GDP and agricultural productivity at the 10% significance level. His results also show that disaster/conflict have a positive and significant impact on aid receipts at the 5% significance level, implying that aid responds to disaster and conflicts in the region. The transparency index has a positive but non-significant relationship with foreign agricultural aid, agricultural GDP, and agricultural productivity, but the governance index has a positive and significant relationship with agricultural productivity at the 10% significance level. The study also reveals that bilateral foreign agricultural aid influences agricultural productivity more than multilateral foreign agricultural aid, while multilateral foreign agricultural aid influences agricultural GDP more than bilateral foreign agricultural aid. This means that while bilateral agricultural aid can be more influential for agricultural productivity, multilateral aid can have greater influence on agriculture's contribution to the economy than the bilateral agriculture aid. This finding may indicate that it is not only the amount of aid that can influence agriculture, but that the nature, origin, and purpose of the aid can be important in measuring its impact. The governance index coefficient is not significant in the bilateral agricultural aid equation, but it is significant in the multilateral agricultural aid equation, which implies that issues of governance may be more of importance for the receipt of multilateral aid.

Randhawa (2008) concluded that a large inflow of foreign aid is neither feasible nor desirable for LDCs. Foreign aid provide crucial support to the development plans, but the developed countries are not ready to supply aid to the extent required by the less developed. So India and other developed countries should make tremendous efforts to boost their exports so that in a decade or so they have a trade surplus. Expansion of exports is also essential to pay for increasing imports. Larger exports are needed for debt service repayment. But the policy for that favors trade and not aid successful only if there is increase in domestic savings equal to the rise in export earnings. Trade will substitute for aid when larger export earning raise national income and this lead to increase saving. In fact, greater trade opportunities are like greater aid flows. However, countries that are in the early phase of development should not think of substituting trade for aid because they can only develop their trade through aid over the long run. Although greater trade possibilities for such countries have some resource element in them, they are more

complementary to aid flow then substitutable for them. Development requires trade and aid.

Soesastor (2004) concluded that foreign aid in East Asia has a history of over half a century. It has become an important feature of economic development in the region perhaps since the early 1970s when countries in Southeast Asia began to step up their development efforts. They have been inspired by the achievements made by their Northeast Asian neighbors, Japan, South Korea, Chinese Taipei, and Hong Kong. Many of these countries have made use of foreign aid in their development. Japan, for instance, drew on funding from the World Bank from 1953 to 1966. South Korea and Chinese Taipei received substantially large sums of aid from the United States during the Cold War. They all benefited from the development of large economic infrastructures, such as roads, ports, power generation, as well as irrigation, financed to a large extent by foreign aid. This had helped to create the foundation for economic take-off as those economic infrastructures stimulated and facilitated large investments in resources extraction, industrial production activities, and exports. Since 1951 Western countries have given developing countries more than US\$ 1 trillion in development assistance, including humanitarian aid. He further added that the recipients and donors understood that foreign aid should be seen only as a supplement to the recipient's own efforts.

Kosack & Tobin (2006) concluded that many believe that the key to development is increased FDI. They show both theoretically and statistically that this belief is invalid, or, at the least, that it needs qualification. In their model, FDI's impact is conditional on development: in the aggregate, FDI probably has no effect on economic growth, and it has no effect on human development in more highly developed countries. But in countries without extensive human capital, FDI can actually slow the rate of human development. If countries at low levels of development are being harmed by increased inflows of FDI, then substituting investment incentives for aid should not be a priority of wealthy countries. Instead, the development community should discourage policies that make poor countries attractive to FDI that is potentially exploitative. Aid also has a conditional relationship with economic growth and with human development. They find that in countries with extremely low levels of human capital, aid, like FDI, works against development. But once a country reaches even a minimal level of human capital, aid

contributes powerfully to both higher growth and faster human development, and that effect grows stronger as a country becomes more developed.

Eroglu (2000) explained that effectiveness of aid depends largely upon both the donor and recipient motives and how these may be aligned or conflicting with the objectives of aid. This is also depends on the extent to which aid is tied to capital projects rather than being disbursed in forms such as food aid, balance of payments support and debt relief which do not necessarily have any development component at all. Whether the recipient uses aid to increase savings and investment rather than switch aid resources to consumption and other nonproductive purposes, also determine the effectiveness of aid. However, evidence shows that donor countries are increasing aid tying. This is, of course, in the best of interest of the donor country as opposed to the poverty stricken recipient country. It does not serve to increase growth in LDC's but has an adverse effect on growth, employment and the balance of payments. Thus, it is suggested that donor countries must avoid tying of aid, especially joint tying by source and by commodity as it leads to monopolistic exploitation. Finally, it is argued that the amount of aid should be increased. However, in the light of the conflicting motives of donors and recipients, it is not likely that such an increase will alleviate poverty. Since the beginning of the Gulf crises the international community has been asking for more aid to the countries like Ethiopia, where crop failure and famine are having drastic effects on the poor. However, due to political motivations more aid has been directed towards Egypt and Israel for their political support of the crises. Hence, unless the reforms outlined before take place, any increase in the amount of aid will not necessarily have a notable effect on the LDC's.

Girma (2015) analysed that relationship between foreign aid and economic growth and found the negative contribution of foreign aid on RGDP growth both in short run and long run period in Ethiopia disproving the first hypothesis of the study. In the longrun and short run on average, a one percentage increase in the aid-to-RGDP ratio leads to a decrease in RGDP growth by about 0.65 % and 0.28% respectively, other variables being constant. Foreign aid interacted with policy index has positive coefficient showing that the effectiveness of aid depends on macroeconomic policy.

Norton Ortiz & Pardey (1992) concluded that foreign assistance to agriculture takes many forms and is intended to accomplish a variety of economic, political, and humanitarian objectives. Donors and recipients alike have a vested interest in the economic effectiveness of agricultural aid. The results of this study indicate that such aid, since 1970, has improved agricultural productivity in the Middle East and Latin America. The study also indicate that aid has been effective in countries with high levels of external debt or sizable fiscal deficits and researcher stated that this may perhaps when the debt was incurred, it resulted in investment in the agriculture sector, complementing the foreign aid. Additional results suggest that aid effectiveness did not vary by income level of the country or by the relative importance of the agricultural sector.

2.3 National Context

Bhattarai (2009) analyzed the effectiveness of aid in Nepal using cointegration and error correction mechanism to investigate the impact of aid on per capita real GDP. The result showed that aid is positively related to per capita real GDP in the long run. The channel through which aid affects GDP is technological progress. That is, aid helps to upgrade technology by helping import capital goods. Aid in the form of technical assistance also improves Nepal's institutional capacity. However, in the short run the impact of aid is negative. This could be due to problems associated with absorptive capacity, aid management, coordination and allocation, and aid conditionality. It is also concluded that aid effectiveness improves in the presence of good policies in the long-run. Nepal's policy environment improved significantly since the mid 1980s when it implemented various Structural Adjustment Programs. Aid is found to be more effective during these period.

Basnet (2006) concluded that achievements made in agriculture development in the past have not been much satisfactory. Despite the top priority accorded to agriculture sector, it has not developed as expected. His analysis suggest that inadequate diffusion of investment within the agriculture sector in the absence of proper prioritization and insufficient availability of production materials in the market due to weak sectoral policies related to agriculture have mainly been responsible for the failure of significantly increase agricultural production and productivity. Similarly the average annual

production and productivity of agriculture sector is increasing with the increment of investment in this sector however it is not satisfactory. Agriculture is carried on in an old fashion with the obsolete and outdated methods of production as a result; the yield from land is low. The major finding of this study is there is significant positive relationship between foreign aid and agricultural GDP. The comparison is made before and after the restoration of democracy (1978/79-1989/90) and (1990/91-2002/03) and found that elasticity of aid is higher in post 1990 than prior 1990. This implies that productivity and utilization of foreign aid is better after the liberalization than prior to liberalization.

Karna (2004) analyzed the past development efforts on agriculture development and current status of development in Nepal. The author has mainly focused on the problem and prospects of agricultural development in Nepal. There are different types of problem on agriculture development in Nepal like, lack of irrigation facility, lack of scientific land reform, lack of chemical fertilizer and improved seeds, lack of credit facility etc. Despite of these problems Nepal has tremendous possibility of increasing agriculture production three to four fold by developing animal husbandry of various types, horticulture, vegetable and food crops farming. According to author, agriculture is the important strategic areas of overall economic significance. Therefore, the economy establishes a strong link with both domestic and foreign sectors, and acts as the source of income for poor through employment and food supply provision, the central issue has been how to make this sector commercially attractive, economically viable and competitive.

Poudel (2006) concluded that a substantial portion of Nepal's development expenditure is met by foreign aid. The foreign aid policy of HMG/Nepal is committed to improving disbursement of foreign aid through various ways. The policy has also emphasized that foreign aid would be considered as an additional to domestic resources to accelerate growth and poverty reduction. Nepal's various periodical plan absorbed the larger volume of foreign aid. The development expenditure in each periodic plan was heavily financed by foreign aid as high between 44.0 percent and 77.0 percent. The total aid to Nepal up to 2003/04 levelled to Rs. 235498.95 million. The aid absorptive capacity of Nepal is found to be unpredictable. The volatile characteristics of absorptive capacity of foreign aid to Nepal suggest that this was due to delay in factors emanating from diverse channels. The complicated procedures in finalizing things, difficulty in timely

procurement of equipments and components, findings suitable contractors, internal disturbances and administrative inefficiency appear to be the major hurdles in the timely completion of the foreign aided projects. In addition, the priorities of donors, their interest and complexities have also been attributed to low absorptive capacity of aid in Nepal. The socio-economic sector succeeded in attracting large amount of foreign aid in Nepal. The transport, power, communication, agriculture, irrigation, and forestry sectors attracted considerable amount of foreign aid in the past followed by industry, commerce and social services sector. Some have argued that poverty is not a major concern of foreign aid flow to Nepal, but politics and political strategic considerations have been the major determining factor. Empirical findings reveal that the role of foreign aid in GDP is positive and similarly role of agricultural aid to agriculture GDP is positive.

Adhikari (2015) studied about the contribution of domestic savings, government expenditure on agriculture and foreign direct investment on agriculture to the national economy which reveals that these variables jointly contribute significantly thereby indicating the models goodness of fit. The study shows that government expenditure on agriculture is crucial for the GDP indicating per unit expenditure on agriculture could contribute more than 101 units to the GDP on the basis of analysis of data in the model tested. However, the government budget allocation to expenditure on agriculture is not that much interesting, receiving around 3 percent of the national budget thereby creating pressure to the ever increasing demands of farmers. The annual budget growth rate of MoAD was found to be 22.74 % which is slightly higher than that of National budget. However, to satisfy the ever increasing demand of farmers to the service delivery, it is not sufficient.

Khadka (1997) has analyzed the foreign aid and foreign policy of Nepal and influence of major power on Nepalese politico-economic scenario very clearly and sophisticatedly. He has addressed the foreign policy aspect of foreign aid in Nepal where people have been associating foreign aid with generosity and humanitarianism on the part of donors. He has focused that the foreign aid and foreign policy of major powers USA , India, China and the Soviet Union during *Panchayat* years 1961-1990 and after 1990 which is based on both primary and secondary sources of information. He found the impact of aid on growth, investment and saving has failed to produce desired result on the recipients'

economy. The agriculture sector of Nepal grew only by 1.1 percent for below the population growth rate between 1965 to 1980 and 4.5 % during 1980/89. Foreign aid was conceived as an investment of foreign policy around the time when the cold war hostility between USSR and US. Economically, Nepal benefited from India's aid but not politically. Nepal has been successful in taping a substantial amount of aid which is one indicator of the success of the foreign economic policy of economic diversification. He has recommended that the consistent and enduring development policy over a long period of time should be formulated by identifying the exact role of aid by taking in to consideration factors such as the capacity to absorb aid and sustain its benefits effectively, creation of aid benefits and their distribution and recipients efforts toward self-reliance within a reasonable period of time.

Acharya (2002) analyzed the country assistance strategies of major donors and also the foreign aid policy of government. He found that foreign aid has been covering as much as 57 % (1996/97), 61.1 % (1990) and 55.2 % (2000/01) of the government's annual development expenditure. Out of total disbursement of foreign aid, the share of loans has continuously been on the increasing. It increased from 28.9 % in 1975/76 to 72.8 % in 1995/96 and again started to fall to 67.4 % in 2000/01. Among multilateral donors, IDA has been the single largest, followed by the ADB and the UN system. Among bilateral donors Japan tops the list. Nepal's infrastructure has been the main beneficiary of foreign aid. Agriculture has been receiving a declining share whereas social service sectors have been allocated more in recent years. Foreign aid has perpetuated economic and social dualism in Nepal. Corruption, political interference in bureaucratic functioning, an effective monitoring system, donor's own strategic interests, and lack of commitment from government are the major reasons for the ineffectiveness of foreign aid in Nepal. He has recommended that vision and ways of aid utilization should be thought out by both donors and recipient countries. He also added that the recipient country should improve and enhance project management efficiency and should control corruption.

Budhathoki (2001) has analyzed the role of foreign aid in agriculture sector. This study has focused on source, structure and contribution of foreign aid in the Nepalese economy. The main interesting part of this study is that it has been analyzed, compared by dividing period of time into before restoration of democracy and after restoration of democracy of

1990. This study has compared development activities according to democracy and politico-economic situation. He finds that the foreign aid commitment in the agriculture sector has decreased by 7.9 % after the ten years of 1990 in comparison to the ten years before 1990. The total amount of foreign aid in the agriculture sector has increased more than two times (2.8 fold) after the 1990 in comparison to ten years before 1990. The amount of foreign aid to agriculture sector during the period 1980 to 2000 has cumulated to Rs. 39465.4 million. Average annual production and productivity of agriculture sector is increasing with the increment of investment in this sector however it is not satisfactory. Agriculture development is almost depending on foreign aid. Hence he concludes that after an analysis of 20 years, the role of foreign aid in agriculture sector remained positive.

Sapkota (2005) found that the foreign aid has started to flow in various sector of economy systematically into Nepal right from 1951/52. There has been many fold increase in the quantum of aid flows into Nepal. During the period of 1951/52 to 1999/2000, there has been some improvement in the physical and socio-economic indicators of Nepal. Foreign aid has various beneficiaries sectors among which agriculture sector is one of them. During the period 1980/2000, the amount of foreign aid to agriculture sector has cumulated to Rs 39465.4 million. Donors are gradually pushing Nepal to replace grant by concessional loan and concessional loans by commercial loans after the liberalization in 1990. Our agriculture sector has not remained far from this liberalization in 1990. After 1990, the amount of grants has cumulated to Rs 6948.6 million while loan has cumulated to Rs 30556.8 million during the period 1990 to 2000. During the period 2000 to 2003, it was Rs 1946.8 million and 721.7 million respectively. However, increment in average annual production and productivity in agriculture sector compared to increment of investment is not satisfactory.

Sigdel (2004) has mentioned that foreign aid is one of the most original political and economic phenomena of the twentieth century and it has become a foundation to North-South relation which emerged as one of the principle levers for the globalization of social policies. The required data has been collected and analyzed since 1981/82 to 2001/02. A simple non-linear regression model has been estimated using OLS method to find out the role of foreign aid to mitigate ever-growing resource gap of Nepal. The result reflects that

there is a significant relationship between resource gap and foreign aid during twenty-one years. The flow of foreign aid in Nepal has been faster than increase in resource gap. The D- W test, which is also nearly 2 percent, indicates the significant of foreign aid to mitigate ever growing resource gap. The foreign aid supplements more than 60 percent of the total resource gap and the remaining are met by remittance and foreign currencies earned from tourism sector. The author further recommended that Nepal should proceed higher economic growth by using owns resources on sustainable basis. Public investment should be directed towards improving infrastructure that would promote private sector investment and thereby economic growth.

From the above review, it can be inferred that most of the study examined the effects of aid on growth through OLS technique which only shows the short run impact of aid on economic growth. However this study uses the time series techniques of cointegration through ARDL approach of long run analysis. This is also the more appropriate technique to detect the effectiveness of aid via short run dynamics and long run linkages.

CHAPTER - III

RESEARCH METHODOLOGY

Research methodology is a discussion of the methodology used in this study. The methodology is the general research strategy that outlines the way in which research is to be undertaken and, among other things, identifies the methods to be used in it. The methods described in the methodology define the means or modes of data collection and how a specific result is to be calculated. In Research Methodology, researcher always tries to search the given question systematically in their own way and find out all the answers till conclusion. If research does not work systematically on problem, there would be less possibility to find out the final result. For finding or exploring research questions, a researcher faces lot of problems that can be effectively resolved with using correct research methodology.

3.1 Research Design

It is the entire process of planning and procedures that are employed for carrying out this research as collecting, analyzing and interpreting the data and evidence. The main attempt of this study is to analyze the role, contribution and effectiveness of foreign aid in agriculture sector and consequently in Nepalese economy. The collected data are processed according to the need of the chapters, as finding total, averages, percentages, ratios, growth etc. Regression analysis is used to find out the exact effects of foreign aid on agriculture GDP.

3.2 Nature and Sources of Data

The study is analytical as well as descriptive in nature. The study is fully based on the secondary data and information. So the required data for the study has been collected

mainly from concerned institutions and the various publications carried out by Ministry of Finance, National Planning Commission, Central Bureau of Statistics, Nepal Rastra Bank, etc. Likewise different publications, as budget speech, various years of economic surveys, plan documents are also used for completion of this study. The collected data are arranged systematically in tabular form according to the need of the study.

3.3 Period of the Study

This study covers the sample of 20 years from the FY 1996/1997 AD to 2015/2016 AD. The cut off period starts from FY 1996/97 because Nepal does not have systematic and reliable record of foreign loans and grants in agriculture data before FY 1996/97.

3.4 Methods of Data Collection

In this secondary data and information were collected through various published sources, unpublished sources. Published sources of data are collected from Quarterly Economic Bulletin (NRB), Banking and Financial Statistics (NRB), Government Finance Statistics (NRB), Economic Survey Reports (MOF), National Accounts of Nepal (CBS), Statistical Year Book of Nepal (CBS), Statistical Pocket Book (CBS), International Monetary Fund, Red book (MOF) and World Bank Data Bank are the major sources of data and information for the study.

3.5 Data Organization, Management and Processing

Collected data and information were organized, managed and processed in context with given research question and to satisfy the objectives of the study. Data used in this study were time series data. Agriculture GDP, Flow of foreign aid in agriculture, government expenditure on agriculture, foreign direct Investment in agriculture were at nominal form and they were converted into real form by dividing the nominal value by GDP deflector.

3.6 Specification of Models

Regression analysis draws an equation that provides quantitative role of dependent variable (Agriculture GDP) for given values of independent variables (Flow of foreign aid in agriculture, government expenditure on agriculture, foreign direct investment in agriculture in this study). The primary objective of the regression analysis of the study is

to show the relationship between foreign aid and agricultural GDP. For instance, after deriving regression equation one can able to find out the effect of foreign aid on Agriculture GDP.

Agriculture GDP (Y_t) is regressed with foreign aid in agriculture (FA_t), Government expenditure on agriculture (GE_t), Foreign direct investment on agriculture (FDI_t) to examine the role of independent variables (FA_t , GE_t , FDI_t) on the dependent variable (Y_t). Regression equation of Y on FA, GE, FDI can be expressed as:

$$Y_t = f(FA_t, GE_t, FDI_t)$$

Taking natural log on both sides, the above equation, we get

$$\ln Y_t = \alpha + \beta_1 \ln (FA_t) + \beta_2 \ln (GE_t) + \beta_3 \ln (FDI_t) + e \dots \dots \dots (3.1)$$

Where,

Y_t = Agriculture GDP in time period "t"

FA_t = Foreign aid in agriculture in time period "t"

GE_t = Government expenditure in agriculture in time period "t"

FDI_t = Foreign direct investment in agriculture in time period "t"

'e' is the error term and α , β_1 , β_2 and β_3 are regression parameters.

3.7 Specification of the Variables

In this study, the dependent variable is Agriculture GDP and independent variables are foreign aid in agriculture, government expenditure in agriculture, FDI in agriculture.

- a) **Agricultural GDP:** Agricultural GDP is the Gross Domestic Product (GDP) coming from the agricultural sector. Total GDP is defined as the sum of the value added from total agriculture, industry and the services sectors. In this study the nominal agricultural GDP is transform into real GDP by using GDP deflector of Nepal.
- b) **Foreign aid in agriculture:** It is the foreign assistance received by Nepal from various bilateral and multilateral sources in agricultural sector. In this study the nominal agricultural foreign aid is transform into real agricultural foreign aid by using GDP deflector of Nepal.
- c) **Government expenditure in agriculture:** It is the expenditure done by government of Nepal through internal sources for the improvement of agriculture sector. In this

study the nominal government expenditure in agriculture is transform into real form by using GDP deflector of Nepal.

- d) FDI in agriculture:** A foreign direct investment (FDI) is an investment made by a company or entity based in one country, into a company or entity based in another country. The nominal FDI in agriculture is transform into real form by using GDP deflector of Nepal.

3.8 Estimation Methodology

There are various techniques for conducting the cointegration analysis on agricultural GDP function. The popular approaches are: the well-known residual-based approach proposed by Engle and Granger (1987), and the maximum likelihood-based approach proposed by Johansen and Julius (1990) and Johansen (1991). When there are more than two variables of stationary at first difference $I(1)$ in the system, the maximum likelihood approach of Johansen and Julius has the advantage over residual-based approach of Engle and Granger; however, both of the approaches require that the variables have the same order of integration. This requirement often causes difficulty to the researchers when the system contains the variables with different orders of integration. To overcome this problem, Pesaran et al. (1996, 2001) proposed a new approach known as Autoregressive Distributed Lag (ARDL) to cointegration test that does not require the classification of variables into stationary at level form $I(0)$ or stationary at first difference $I(1)$. Therefore, adopting the ARDL approach for cointegration test, there is no need to conduct the unit root test, which is prerequisite for residual-based and maximum likelihood based approach. For these advantages, ARDL approach has gained popularity over recent years and its adoption for empirical long run cointegration analysis can be found in many published works.

This study follows the Auto Regressive Distributed Lag Model (ARDL) as proposed by Pesaran and Shin (1999). There are many advantages of this approach. First, it can be applied on a time series data irrespective of whether the variables are $I(0)$ or $I(1)$ (Pesaran and Pesaran, 1997). Second, it takes sufficient numbers of lags to capture the data generating process in a general-to-specific modeling framework (Laurenceson and Chai, 2003). Third, a dynamic Error Correction Model (ECM) can be derived from ARDL

through a simple linear transformation (Banerjee et.al., 1993). The ECM integrates the short-run dynamics with the long run equilibrium without losing long-run information.

The ARDL bound testing approach to cointegration is explained below:

The ARDL bounds testing approach to cointegration was developed by Pesaran and Shin (1999) and Pesaran *et al.* (2001). Due to the low power and other problems associated with other methods for cointegration test, the ARDL approach to cointegration has become popular in recent years. The ARDL cointegration approach has numerous advantages in comparison to other cointegration methods such as Engle and Granger (1987), Johansen (1988), and Johansen and Juselius (1990) procedures.

- i) The ARDL procedure can be applied whether the regressors are I(1) or I(0), while Johansen cointegration techniques require that all the variables in the system be of equal order of integration. This means that the ARDL can be applied irrespective of whether underlying regressors are purely I(0), purely I(1) or mutually cointegrated and thus no need for unit root pre-testing.
- ii) The Johansen cointegration techniques require large data samples for validity, the ARDL procedure is statistically more significant approach to determine the cointegration relation in small samples.
- iii) The ARDL procedure allows that the variables may have different optimal lags, while it is impossible with conventional cointegration procedures. Fourthly, the ARDL technique generally provides unbiased estimates of the long-run model and validates the t-statistics even when some of the regressors are endogenous.
- iv) The ARDL procedure employs only a single reduced form equation, while the conventional cointegration procedures estimate the long-run relationships within a context of system equations.

Following the ARDL approach proposed by Pesaran and Shin (1999), the existence of long run relationship could be tested using equation (3.2) below:

$$\Delta \ln Y_t = a_0 + \sum_{j=1}^p b_j \Delta \ln Y_{t-j} + \sum_{j=0}^q c_j \Delta \ln FA_{t-j} + \sum_{j=0}^r d_j \Delta \ln GE_{t-j} + \sum_{j=0}^s e_j \Delta \ln FDI_{t-j} + \gamma_1 \ln Y_{t-1} + \gamma_2 \ln FA_{t-1} + \gamma_3 \ln GE_{t-1} + \gamma_4 \ln FDI_{t-1} + e_t \dots \dots \dots (3.2)$$

Where, $\gamma_1, \gamma_2, \gamma_3, \gamma_4$ are the long run coefficient of Y_t, FA_t, GE_t, FDI_t respectively. Similarly, b_j, c_j, d_j, e_j represents the short run dynamics of Y_t, FA_t, GE_t, FDI_t respectively and e_t represents the random disturbance terms respectively.

3.9 Hypothesis Testing

To test whether the long run equilibrium relationship exists between real agricultural GDP, real agricultural Foreign aid, real agricultural government expenditure in agriculture and real agricultural FDI this study carries out Bounds test (F-version) for cointegration as proposed by Pesaran and Shin (1999). To test the long run level relationship between the variables, the hypotheses are:

Null Hypothesis: $\gamma_1 = \gamma_2 = \gamma_3 = 0$ i.e. the long run relationship does not exist.

Alternative hypothesis: $\gamma_1 \neq \gamma_2 \neq \gamma_3 \neq 0$ i.e. the long run relationship exist.

This hypothesis is tested by means of the familiar F statistic. The distribution of this F-statistics is non-standard irrespective of whether the variables in the system are I(0) or I(1). The critical values of the F-statistics in this test are available in Pesaran and Pesaran (1997) and Pesaran et al. (2001). They provide two sets of critical values in which one set is computed with the assumption that all the variables in the ARDL model are I(1), and another with the assumption that they are I(0). For each application, the two sets provide the bands covering all the possible classifications of the variables into I(0) or I(1), or even fractionally integrated ones. If the computed F-statistics is higher than the appropriate upper bound of the critical value, the null hypothesis of no cointegration is rejected; if it is below the appropriate lower bound, the null hypothesis cannot be rejected, and if it lies within the lower and upper bounds, the result is inconclusive (Samreth, 2008).

Next step is the estimation of the long run relationship based on the appropriate lag selection criterion such as adjusted R^2 , Schwarz Bayesian Criterion (SBC), Akaike Information Criterion (AIC) and Hannan Quinn (HQ) Criterion. Based on the long run coefficients, the estimation of dynamic error correction is carried out using formulation of equation (3.3). The coefficients $\delta_{1i}, \delta_{2i},$ and δ_{3i} show the short run dynamics of the model and δ_4 indicates the divergence/convergence towards the long run equilibrium. A positive coefficient indicates a divergence, while a negative coefficient indicates

convergence. The term ECM is derived as the error term from the corresponding long run model whose coefficients are obtained by normalizing the equation.

$$\Delta \ln Y_t = \delta_0 + \sum_{j=1}^p \delta_{1j} \Delta \ln Y_{t-j} + \sum_{j=0}^q \delta_{2j} \Delta \ln FA_{t-j} + \sum_{j=0}^r \delta_{3j} \Delta \ln GE_{t-j} + \sum_{j=0}^s \delta_{3j} \Delta \ln FDI_{t-j} + \delta_4 ECM_{t-1} + \vartheta_t \dots\dots\dots(3.3)$$

For the test of stability, CUSUM test as proposed by the Brown et al. (1975) is carried out in this study. Besides these tests, a battery of other tests are also carried out, such as Augmented Dicky-Fuller Test(ADF) for testing the order of integration of the variables, Lagrange Multiplier (LM) test for serial correlation, Ramsey Reset test for functional form Misspecification and Jarque-Berra Test for normality.

3.10 Tools and Methods of Data Analysis

The study is basically carried out of using some statistical and econometric tools that are given as below.

3.10.1 Time Series Properties of the Variables

A time series is said to be stationary if its mean, variance and auto covariance remain the same no matter at what point they are measured; i.e. they are time invariant. Such a time series will tend to return to its mean and fluctuations around this mean will have broadly constant amplitude. If a time series is not stationary, it is called a non-stationary time series (Gujarati and Sangeetha, 2007).

A stationary time series is also called a time series integrated of order zero or I (0) process. If a time series is non-stationary at level but stationary at first difference, it is said to be integrated of order one or I (1) process. In general, if a non-stationary time series has to be differenced d times to get a stationary series, it is said to be integrated of order d or an I (d) process.

Most economic time series are generally I(1); that is , they generally become stationary only after taking their first differences (Granger,1986).

3.10.2 Cointegration

The regression analysis on time series has been much benefited from the concept of cointegration by Granger (1981) and Engle and Granger (1987). They showed that using OLS in case of I(1) variables could be dangerous because a non-stationary series violates the basic assumptions of OLS and as such one cannot get the best linear unbiased estimators (BLUE) and also there may exist the spurious or non-sense correlation between non-stationary variables. In the case where the variables are non-stationary at levels but are difference stationary, cointegration methodology allows researchers to test for the presence of long run equilibrium relationships between economic variables. If the separate economic time series are stationary after differencing or they are integrated of order one, but a linear combination of their levels is stationary, then the series are said to be cointegrated. In other words, two or more I (1) time series are said to be cointegrated if some linear combination of them is stationary. Formally, given x_t and y_t are integrated of order one [I (1)] or are difference stationary processes, they are said to be cointegrated if there exists a parameter α such that $u_t = y_t - \alpha x_t$ is a stationary process or is integrated of order zero [I (0)].

Tests for cointegration seek to discern whether or not a stable long-run relationship exists among such a set of variables. The existence of a common trend among the variables means that in the long run the behavior of the common trend will drive the behavior of the variables. Shocks that are unique to one time series will die out as the variables adjust back to their common trend.

3.10.3 Error Correction Modeling

Even if Y_t and X_t variables are cointegrated, i.e. there is a long run equilibrium relationship between them, there may be disequilibrium in the short run. Thus the error term $u_t = Y_t - \beta_1 - \beta_2 X_t$ in the regression equation $Y_t = \beta_1 + \beta_2 X_t + u_t$ is called the equilibrium error. This error term can be used to tie the short run behavior of Y to its long run value. The Error correction Models (ECM) first used by Sargan (1984) and later popularized by Engle and Granger corrects for disequilibrium. The Granger Representation Theorem says that if two variables Y_t and X_t are cointegrated, then the relationship between the two can be expressed as Error Correction Modeling as:

$$\Delta Y_t = \alpha_0 + \alpha_1 \Delta X_t + \alpha_2 u_{t-1} + \varepsilon_t \dots \dots \dots (3.4)$$

Where,

Δ = first difference operator,

ε_t = a white noise error term,

u_{t-1} = one period lagged value of the error term from the cointegrating regression ($u_{t-1} = Y_{t-1} - \beta_1 - \beta_2 X_{t-1}$)

Equation (3.4) can be arrived through a simple manipulation of the cointegrating regression $Y_t = \beta_1 + \beta_2 X_t + u_t$. Adding and subtracting Y_{t-1} on the left hand side and adding and subtracting $\beta_2 X_{t-1}$ on the right hand side yields:

$$Y_t - Y_{t-1} + Y_{t-1} = \beta_1 + \beta_2 X_t + \beta_2 X_{t-1} - \beta_2 X_{t-1} + u_t$$

$$\text{Or, } \Delta Y_t = \beta_1 + \beta_2 \Delta X_t - (Y_{t-1} - \beta_2 X_{t-1}) + u_t$$

$$\text{Or, } \Delta Y_t = \beta_1 + \beta_2 \Delta X_t - \text{ECM}_{t-1} + u_t \dots \dots \dots (3.5)$$

The ECM in equation (3.4) states that ΔY_t depends on ΔX_t and on the equilibrium error term. If the error term is non-zero, the model is out of equilibrium. Here the value of α_2 decides how quickly the equilibrium is restored.

3.10.4 Diagnostic Tests

Diagnostic tests are the procedures address the assumptions that may have been made about the distribution of the model's error term, and they also focus on the structural specification of the model, in terms of its functional form, the choice of regressors, and possible measurement errors.

a) LM Test for Serial Correlation

In the models which contain lagged values of the regressand, the Durbin-Watson d-statistic is often around to implying that there is no first order autocorrelation. Thus, there is a bias against discovering first order autocorrelation in such models. This does not mean that autoregressive models do not suffer from autocorrelation problem. To solve this problem, Durbin has developed Durbin h-test but it is less powerful in statistical sense than the Breusch-Godfrey test popularly known as the LM test for serial correlation. The LM test allows for the lagged values of the regressand, higher order

autoregressive scheme and simple or higher order moving averages of the white noise error term. The null hypothesis under this test is:

$H_0: \rho_1 = \rho_2 = \rho_3 = \dots = \rho_p = 0$ i.e. there is no serial correlation of any order.

Where u_t follows the p^{th} order autoregressive, AR (p), scheme as follows:

$$u_t = \rho_1 u_{t-1} + \rho_2 u_{t-2} + \dots + \rho_p u_{t-p} + \varepsilon_t \dots \dots \dots (3.7)$$

Test statistic is given by

$$(n-p)R^2 \sim \chi^2_p$$

Where the R^2 is calculated from the auxiliary regression equation given by

$$\hat{u}_t = \alpha_0 + \alpha_1 X_{ti} + \hat{\rho}_1 \hat{u}_{t-1} + \hat{\rho}_2 \hat{u}_{t-2} + \dots + \hat{\rho}_p \hat{u}_{t-p} + \varepsilon_t$$

Where X_{ti} are explanatory variables

For large sample, this statistics follows the chi-square distribution with p df. If $(n-p)R^2$ exceeds the chi-square critical value at the chosen level of significance in which case null hypothesis is rejected that is to say there is the presence of serial correlation of some order.

b) Heteroscedasticity

The existence of heteroscedasticity in the errors implies that the assumption of constant variance in the errors is violated i.e. $V(\varepsilon_t) \neq \sigma^2$. If this is the case, heteroscedasticity in the errors do not affect the un-biasness of the OLS estimates but it affects their precision. The standard errors become biased and the tests of statistical significance cannot be valid. Breusch-Pagan/Godfrey Lagrange Multiplier test of error term is conducted to detect the problem of heteroscedasticity and weighted least squares technique is used to minimize it.

c) Normality

It is also important to check that the residuals are normally distributed; this is done with the Jarque-Bera (J-B) statistic. This statistic measures if there is a significant difference of skewness and kurtosis of the residuals from the normally distributed residuals. The null hypothesis is that the residuals are normally distributed. The J-B has a Chi-square distribution and if it is rejected the residuals are said to be normal. Two components of this statistic are Skewness and Kurtosis. Skewness measures the symmetry of a normal

distribution and its expected value is zero. Regarding Kurtosis, this is an indicator that measures how peaked and flat the distribution is, a normal distribution is expected to have kurtosis equal to 3.

d) CUSUMSQ Test

The CUSUM test (Brown, Durbin, and Evans, 1975) is based on the cumulative sum of the recursive residuals. This option plots the cumulative sum together with the 5% critical lines. The test finds parameter instability if the cumulative sum goes outside the area between the two critical lines. The CUSUM test is based on the following statistics

$$W_t = \sum_{r=k+1}^t \frac{W_r}{s}$$

For $t=k+1, \dots, T$, where W_t is the recursive residual and s is the standard error of the regression fitted to all sample points T . If the vector of the parameter remains constant from period to period, $E(W_t) = 0$, but if this vector changes, W_t will tend to diverge from the zero mean value line. The significance of any departure from the zero line is assessed by reference to a pair of 5% significance lines, the distance between which increases with t . The 5% significance lines are found by connecting the points

$$[k, \pm 0.948 (T-k)^{1/2}] \text{ and } [T, \pm 3 \times 0.948 (T-k)^{1/2}]$$

Movement of outside the critical lines is suggestive of coefficient instability.

CHAPTER - V

MAJOR FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Major Findings

The key goal of developing countries like Nepal is to attain high economic growth rate and reduce poverty with macroeconomic stability. The Three-year Thirteenth Plan (2013-2016) aims at attaining moderate GDP growth rate to reduce overall poverty ratio from 25 percent to 18 percent and to uplift her from least developing country to developing category by 2022 (NPC 2013). In order to achieve these targets, agricultural sector is viewed as an engine for economic development of Nepal. Therefore, foreign aid in this sector provides required capital and technology and generates employment opportunities and thus, idle resources get utilized which, in turn, helps to expand production capacities of the country and also opens the access of products to world markets. Thus, foreign aid plays the vital role to pave the way for economic development for underdeveloped countries like Nepal.

Given the importance of foreign aid in GDP, this study has specific objective of analyzing the nature and trend of agricultural foreign aid and its relationship with agricultural GDP in Nepal. The major findings of this study are as follows:

- The real agricultural foreign aid inflow was Rs. 1194.27 million in FY 1996/97 which has increased to Rs. 2152.27 million in FY 2015/16. The average real agricultural FA is found to be Rs. 1342.55 million and the real agricultural FA of 13 fiscal years is found to be below the average and 7 fiscal years is found to be above the average. There is high degree of fluctuations in agricultural foreign aid. The main cause of this ups and down flow of agricultural foreign aid in Nepal may be due to the transitional politics and internal conflict after 1990.
- The real agricultural GDP was Rs. 142689.50 million in FY 1996/97 which has increased to Rs. 229925.70 million in FY 2015/16. The average real agricultural GDP is found to be Rs. 163050.90 million and the real agricultural GDP of 15

fiscal years is found to be below the average and 5 fiscal years is found to be above the average.

- The percentage change in agricultural foreign aid trend is not in smooth pattern. The then existing Maoist conflict and insurgency affected the development activities of Nepal. After the initiation of the peace process in the country, the government has launched various policies for the effective and fruitful utilization of foreign aid. Nevertheless, FA growth rate followed highly volatile pattern.
- The real GDP growth rate in agricultural sector is also noticed to be negative in various years because the existing Maoist conflict and the unstable government the inflation could not be controlled. As a result of high rate of inflation in the country, though the nominal agricultural GDP was increasing the real GDP growth rate is found to be negative.
- For Augmented Dickey-Fuller (ADF) unit-root test the time series plot was seen which showed that $\ln RGE$ is trended variables whereas $\ln RFDI$, $\ln RGDP$ and $\ln RFA$ are not trended. So, a trend is included in the ADF test for $\ln RGE$. Since $\ln RFDI$, $\ln RGDP$ and $\ln RFA$ have no trend only intercept is included while testing their order of integration.
- Variables $\ln RGDP$, $\ln RGE$ and $\ln RFA$ are integrated of order one or are $I(1)$ processes whereas the variable $\ln RFDI$ is integrated of order zero or are $I(0)$ processes. Since, the variables are of mixed order; the ARDL modeling will be the most appropriate approach for this analysis.
- The results of Bound test shows that the F-statistics are above the upper bounds (8.015309) of the critical values (CV) of standard significance levels (1% or 2.5% or 5 % or 10%) that was also tested by Pesaran and Pesaran (1997). On the basis of these critical values, the calculated F-statistics clearly rejects null hypothesis of no cointegration at 1% or 2.5% or 5 % or 10% level of significance. This proves the existence of cointegration or long-run relationship between variables in the equation.
- The ARDL model is selected on the basis of all criteria like Adjusted R^2 , Schwarz Bayesian Criterion (SBC), AIC and SBC perform relatively well in small

samples, although the SBC is slightly superior to the AIC (Pesaran and Shin, 1999).

- Once co-integration is established the conditional ARDL long-run model for \ln RGDP has been estimated and the result showed that the constant term is statistically significant at 1 percent level whereas the variables \ln RAID, \ln RGE are only significant at the level of 5 percent. The variable \ln RFDI is insignificant.
- Agricultural Foreign aid taken separately has positive impact on RGDP, one percent increase of agricultural foreign aid results in 0.308136% increase in RGDP. Similarly, the coefficient of \ln RGE is 0.19 which indicates that one percent increase in \ln RGE results in 0.19% increase in RGDP.
- The coefficient on the lagged error-correction term is highly significant at one percent level of significance with the expected sign (negative sign). Its value is estimated to 1.07 which implies that approximately 1.07% of disequilibria from the previous year's shock converge back to the long-run equilibrium in the current year.

5.2 Conclusion

In Nepal, both real agricultural foreign aid and real agricultural GDP are fluctuating. The percentage change in growth rate of both agricultural foreign aid and agricultural GDP is also observed to be negative in some fiscal years. The negative growth rate of agricultural GDP shows that the inadequate diffusion of investment within the agricultural sector, absence of proper prioritization and insufficient availability of production materials in the market due to weak sectoral policies related to agriculture have mainly been responsible for the failure of significantly increase agricultural production and productivity. Similarly, the contribution of agricultural and industry sectors to GDP has continued to decline while that of services sector is increasing. Therefore, the government of Nepal should focus on effective use of foreign aid in agricultural development.

There is long run cointegration between real agricultural foreign aid and real agricultural GDP. Agricultural foreign aid taken separately has positive impact on agricultural GDP. The increase in agricultural foreign aid increases the agricultural GDP too. Therefore, the

government should set up the plan to increase the foreign aid in agricultural sector for increasing agricultural GDP of Nepal.

5.3 Recommendations

Based on the empirical finding following recommendations are prescribed:

- As political stability and peace are essential factor for attracting greater volume of Foreign aid in Nepal, that's why political stability and peace should be restored.
- Nepal is still facing lack of electricity, skewed distribution of roads, communication network highly concentrated in a few towns, which discourages growth in agricultural market. Therefore, it is necessary for the government for huge investment in expansion of infrastructural base in the economy with the concentrated effort in those regions where these facilities are poor.
- Harmony and Consistency in between Acts, Policies and International Commitments should be maintained.
- Furthermore, the effective aid policy should be developed in the country so that the donor country could donate huge amount aid in agricultural as well as infrastructural development.
- Donors should reform the current trend of allocating aid towards addressing the needs of Nepalese economy instead of sticking on their own priority and interest.
- Donors should initiate to formulate development programs prioritizing the need of target group. They should emphasize on participatory approach while implementing these programs for effecting result.
- Donors should divert the aid from other non-productive sectors to agriculture as it is the major backbone of Nepalese economy.
- Selected projects should be implemented with full commitment so that it can generate sufficient resources to pay back the loan.
- Similarly, by making formal agreements, emphasis should be given on employing local labours also the entire freedom in the selection, of the projects should not be provided to donors.

- The priority list of viable projects according to the development need of the country should be developed.
- The transparency and accountability of foreign aid should also be maintained for that definite policies and guideline should be outlined.
- Local capacity building should be given outmost priority by giving preference to domestic rather than foreign consultants and contractors to strengthen national human resource.
- The government should increase absorption capacity of foreign aid, for this a separate aid-administering body must be formed which leads to bridging the gap between aid commitment and disbursement.
- Similarly the foreign aid should be spent in development expenditure but not in regular expenditure.
- Agro-based industries should be priorities to promote agriculture. Investment in irrigation should be increased to expand agricultural production and the overall growth rate of economy.

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APPENDIX-I

(In Rs. Millions)

Source: Economic Survey and Red Book (1997-2016)

year	Real Government Expenditure in Agriculture	Real Foreign Direct Investment in Agriculture	Real Agricultural GDP	Real Foreign Aid in Agriculture
1996/97	1315.843	1494.383	13562.1	1194.885
1997/98	1338.895	450.5044	13677.6	1520.112
1998/99	1173.963	541.1819	14066.0	1550.218
1999/00	1420.659	338.2835	14754.3	1743.781
2000/01	1638.941	684.02	15562.45	1721.632
2001/02	1985.407	931.2223	16042.14	1794.724
2002/03	1238.483	234.2017	16576.13	1024.38
2003/04	1348.575	154.3806	17373.42	871.3034
2004/05	1273.405	109.7712	17981.03	1008.192
2005/06	1633.097	272.1474	18301.5	1033.132
2006/07	1636.994	2.097489	18479.6	959.9623
2008/09	1904.381	165.2204	19555.9	1018.539
2009/10	2406.291	291.918	20146.4	1067.472
2010/11	3183.827	1.318565	20551.7	970.491
2011/12	4005.543	255.1403	21478.7	998.5117
2012/13	4229.795	71.93217	22473.1	1317.32
2013/14	4395.857	837.7839	22719.3	775.3545
2014/15	6497.064	608.4194	23371.7	1814.83
2015/16	6226.989	556.3763	23807.7	2329.857