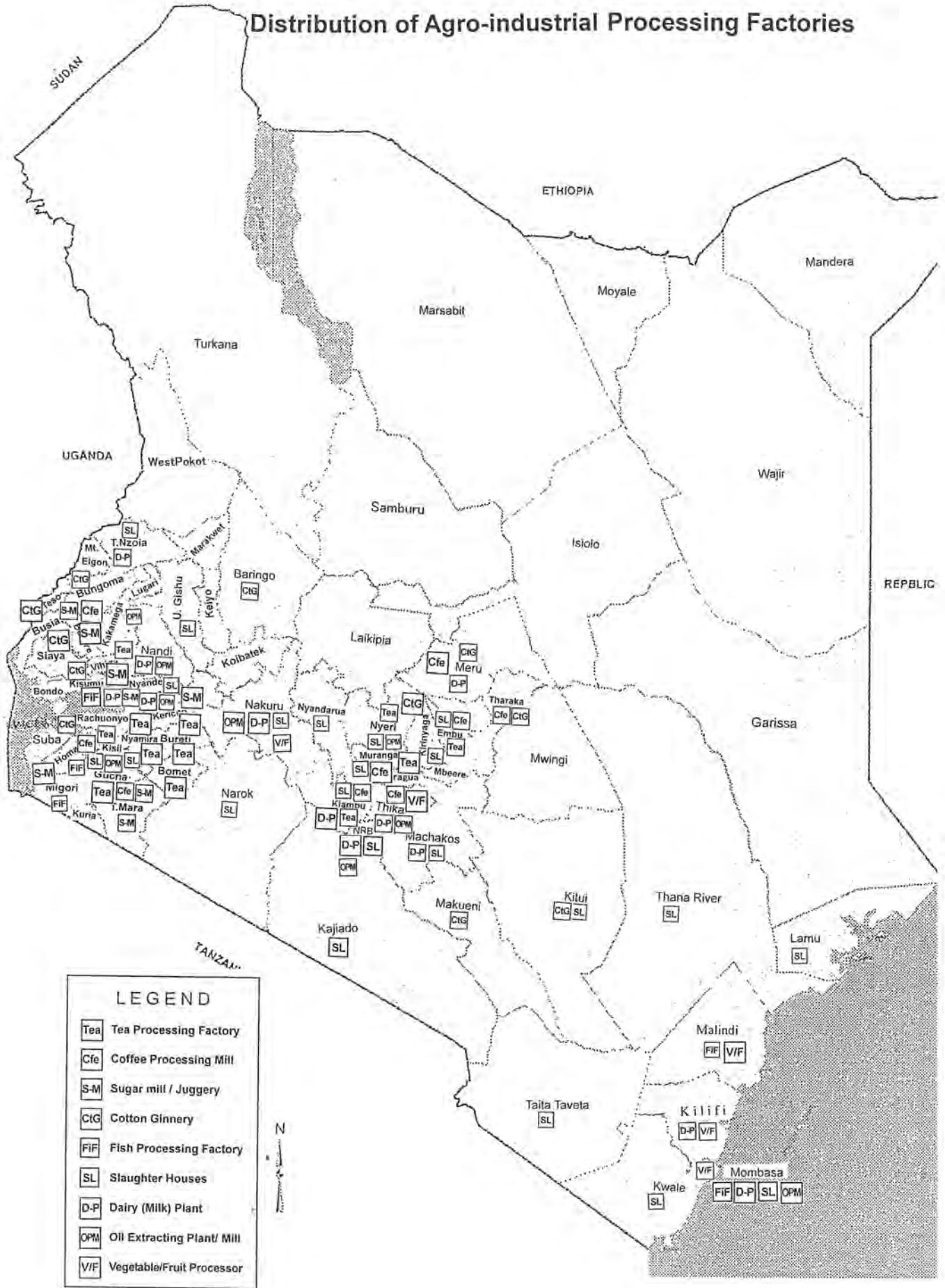


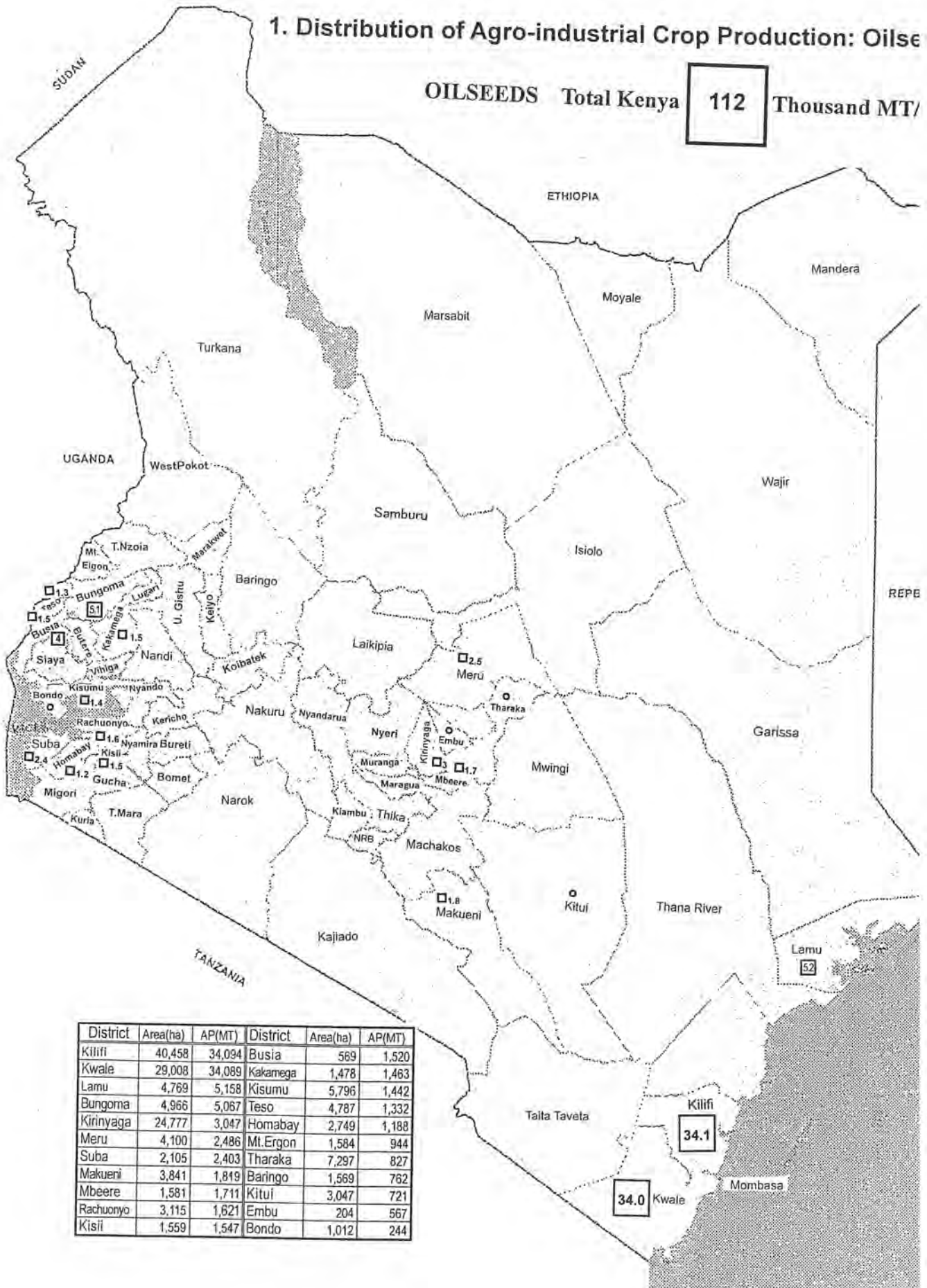
Annex 7 Agro-industrial Maps

Distribution of Agro-industrial Processing Factories

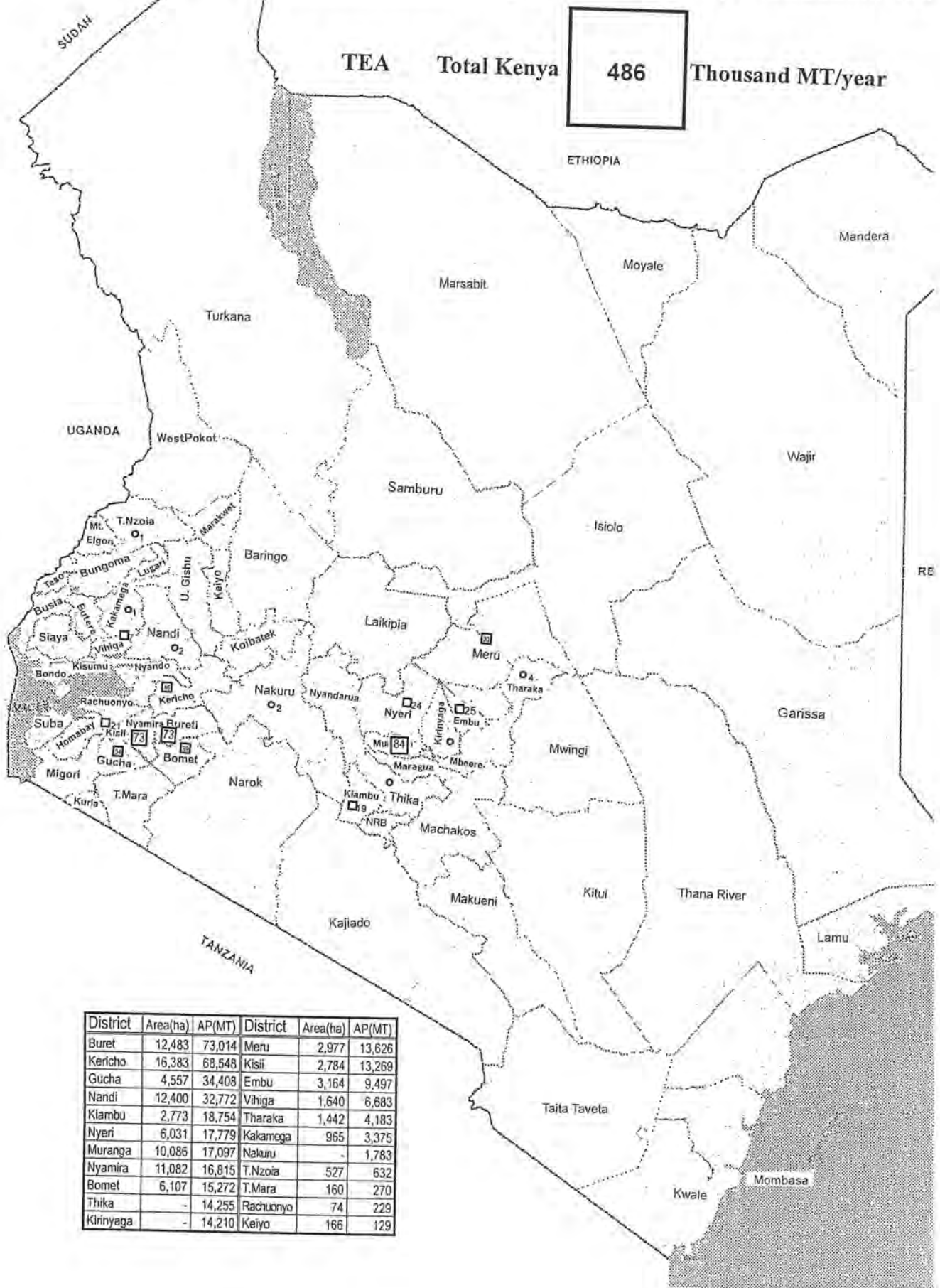


1. Distribution of Agro-industrial Crop Production: Oilse

OILSEEDS Total Kenya **112** Thousand MT/

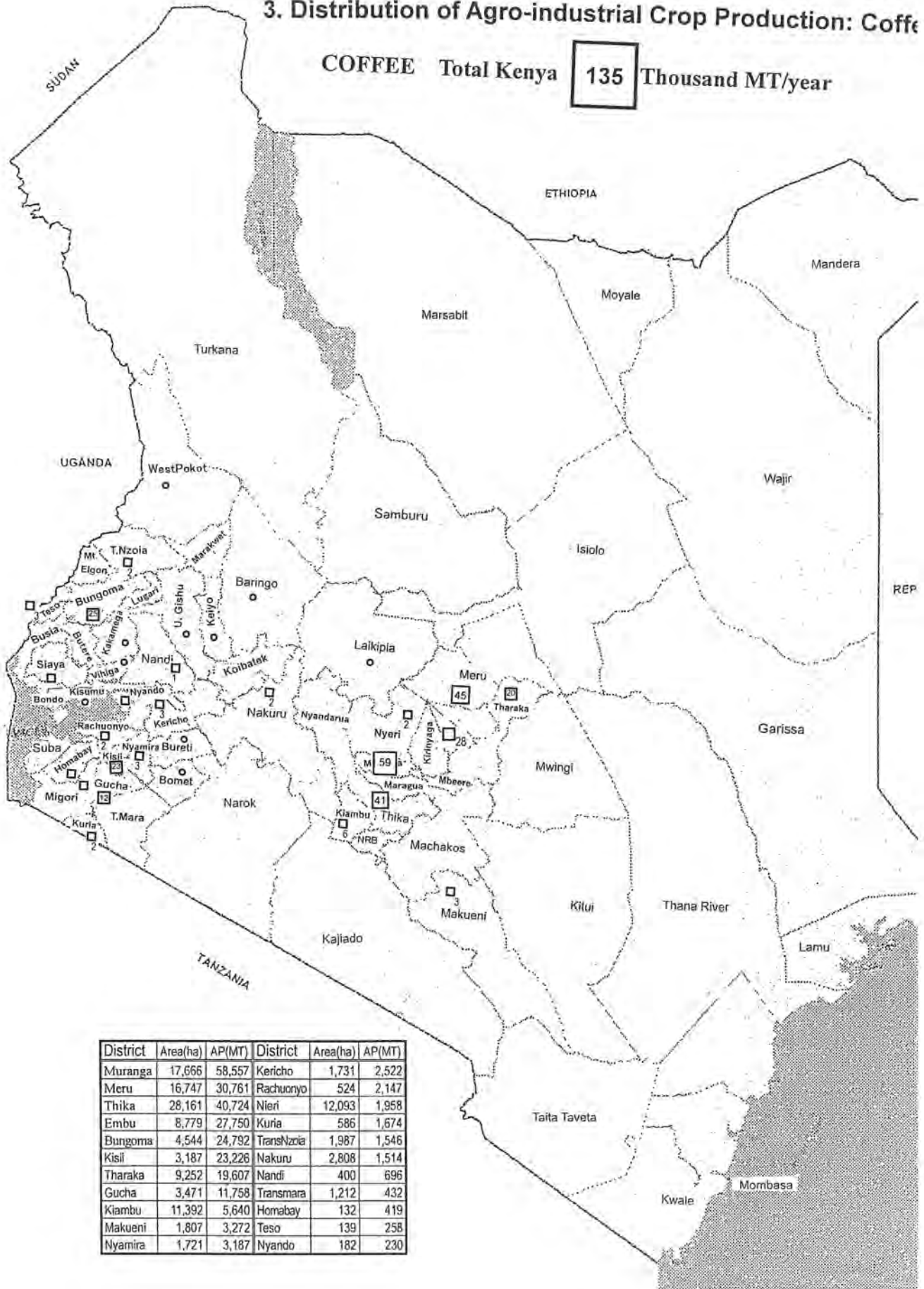


2. Distribution of Agro-industrial Crop Production: Tea



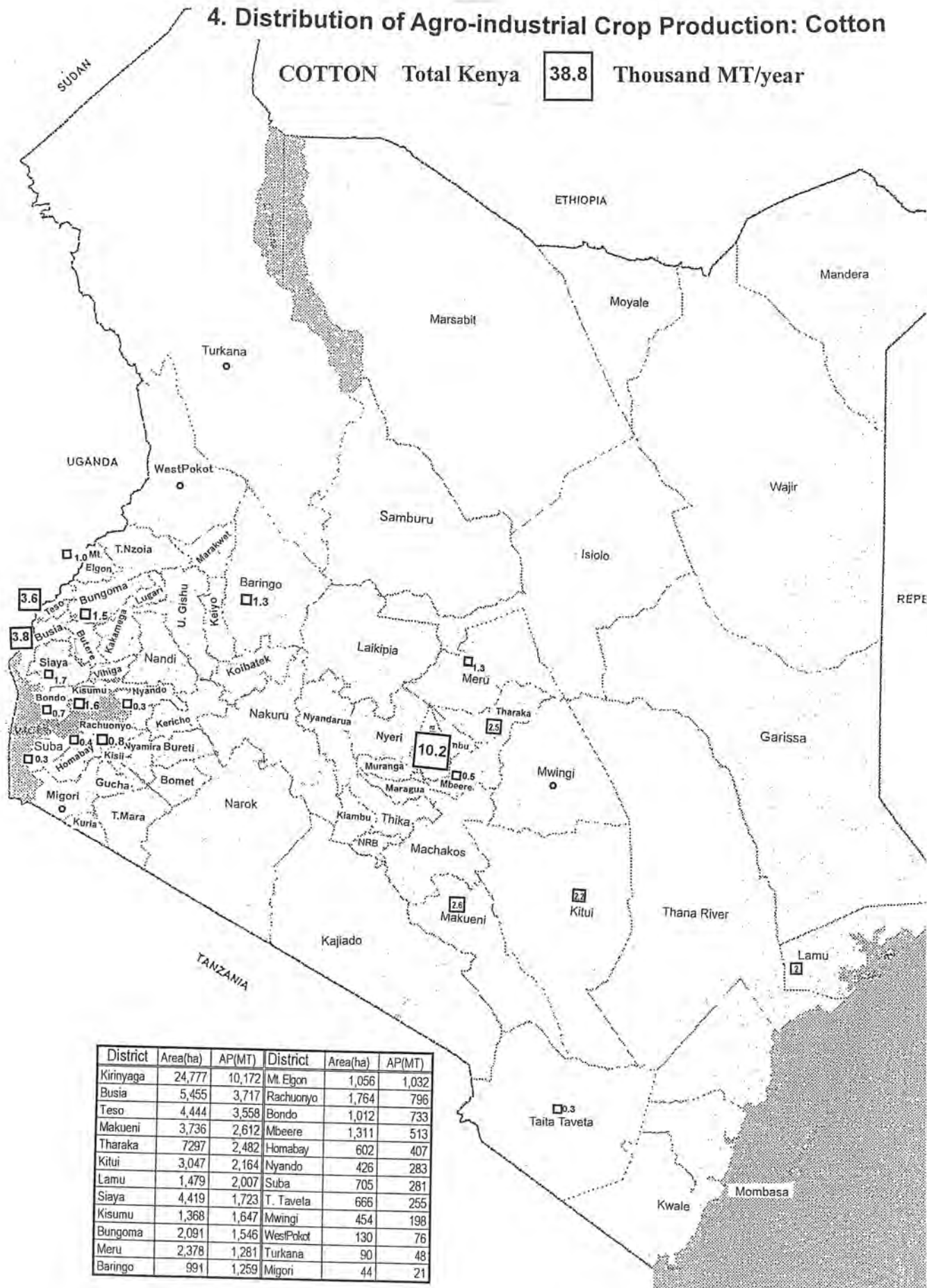
3. Distribution of Agro-industrial Crop Production: Coffee

COFFEE Total Kenya **135** Thousand MT/year



4. Distribution of Agro-industrial Crop Production: Cotton

COTTON Total Kenya **38.8** Thousand MT/year

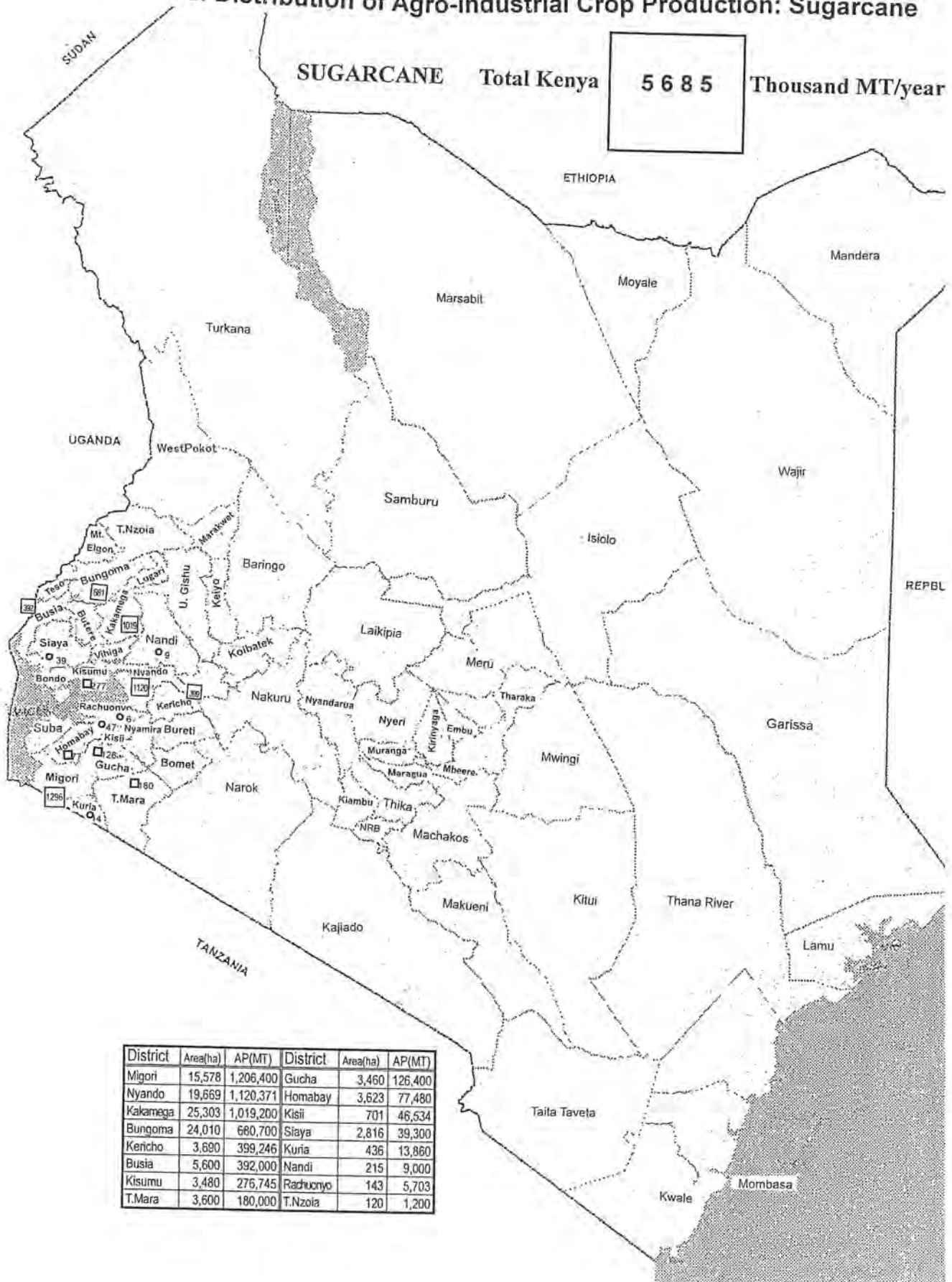


District	Area(ha)	AP(MT)	District	Area(ha)	AP(MT)
Kirinyaga	24,777	10,172	Mt. Elgon	1,056	1,032
Busia	5,455	3,717	Rachuonyo	1,764	796
Teso	4,444	3,558	Bondo	1,012	733
Makueni	3,736	2,612	Mbeere	1,311	513
Tharaka	7297	2,482	Homabay	602	407
Kitui	3,047	2,164	Nyando	426	283
Lamu	1,479	2,007	Suba	705	281
Siaya	4,419	1,723	T. Taveta	666	255
Kisumu	1,368	1,647	Mwingi	454	198
Bungoma	2,091	1,546	WestPokot	130	76
Meru	2,378	1,281	Turkana	90	48
Baringo	991	1,259	Migori	44	21

KENYA ADMINISTRATIVE UNITS

5. Distribution of Agro-industrial Crop Production: Sugarcane

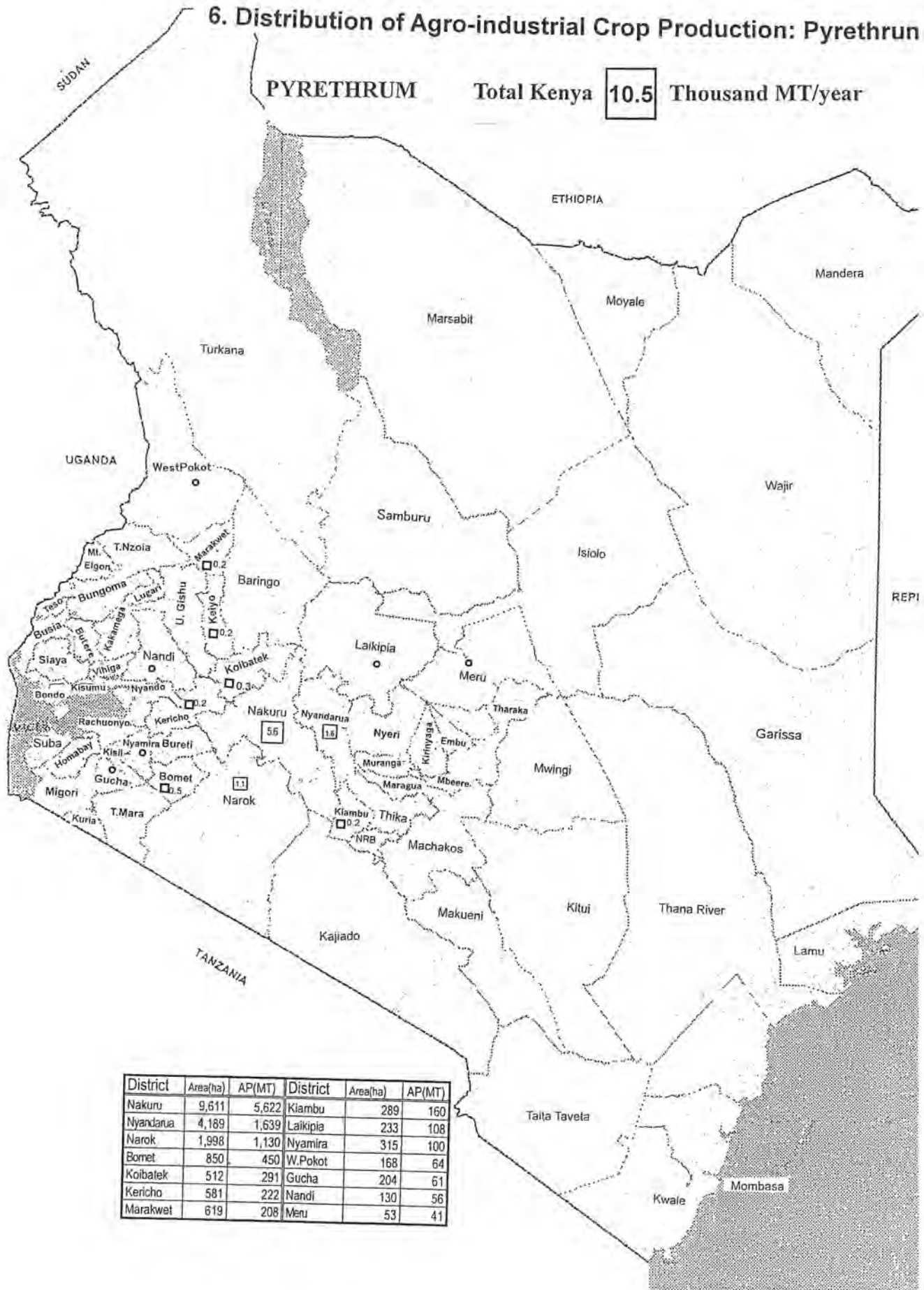
SUGARCANE Total Kenya 5 6 8 5 Thousand MT/year



District	Area(ha)	AP(MT)	District	Area(ha)	AP(MT)
Migori	15,578	1,206,400	Gucha	3,460	126,400
Nyando	19,669	1,120,371	Homabay	3,623	77,480
Kakamega	25,303	1,019,200	Kisii	701	46,534
Bungoma	24,010	680,700	Siaya	2,816	39,300
Kenicho	3,690	399,246	Kuria	436	13,860
Busia	5,600	392,000	Nandi	215	9,000
Kisumu	3,480	276,745	Rachuonyo	143	5,703
T.Mara	3,600	180,000	T.Nzoia	120	1,200

6. Distribution of Agro-industrial Crop Production: Pyrethrum

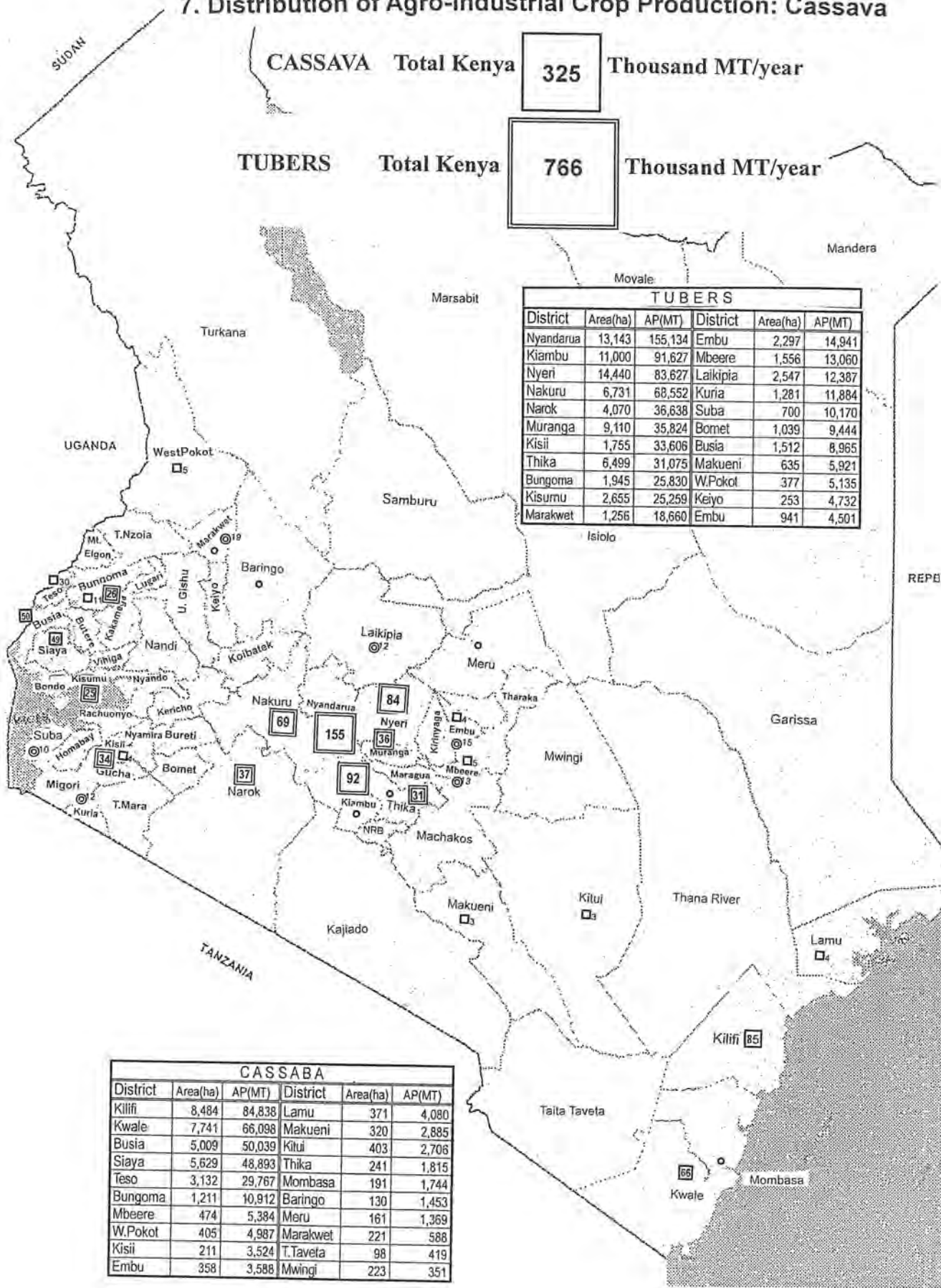
PYRETHRUM Total Kenya **10.5** Thousand MT/year



7. Distribution of Agro-industrial Crop Production: Cassava

CASSAVA Total Kenya 325 Thousand MT/year

TUBERS Total Kenya 766 Thousand MT/year

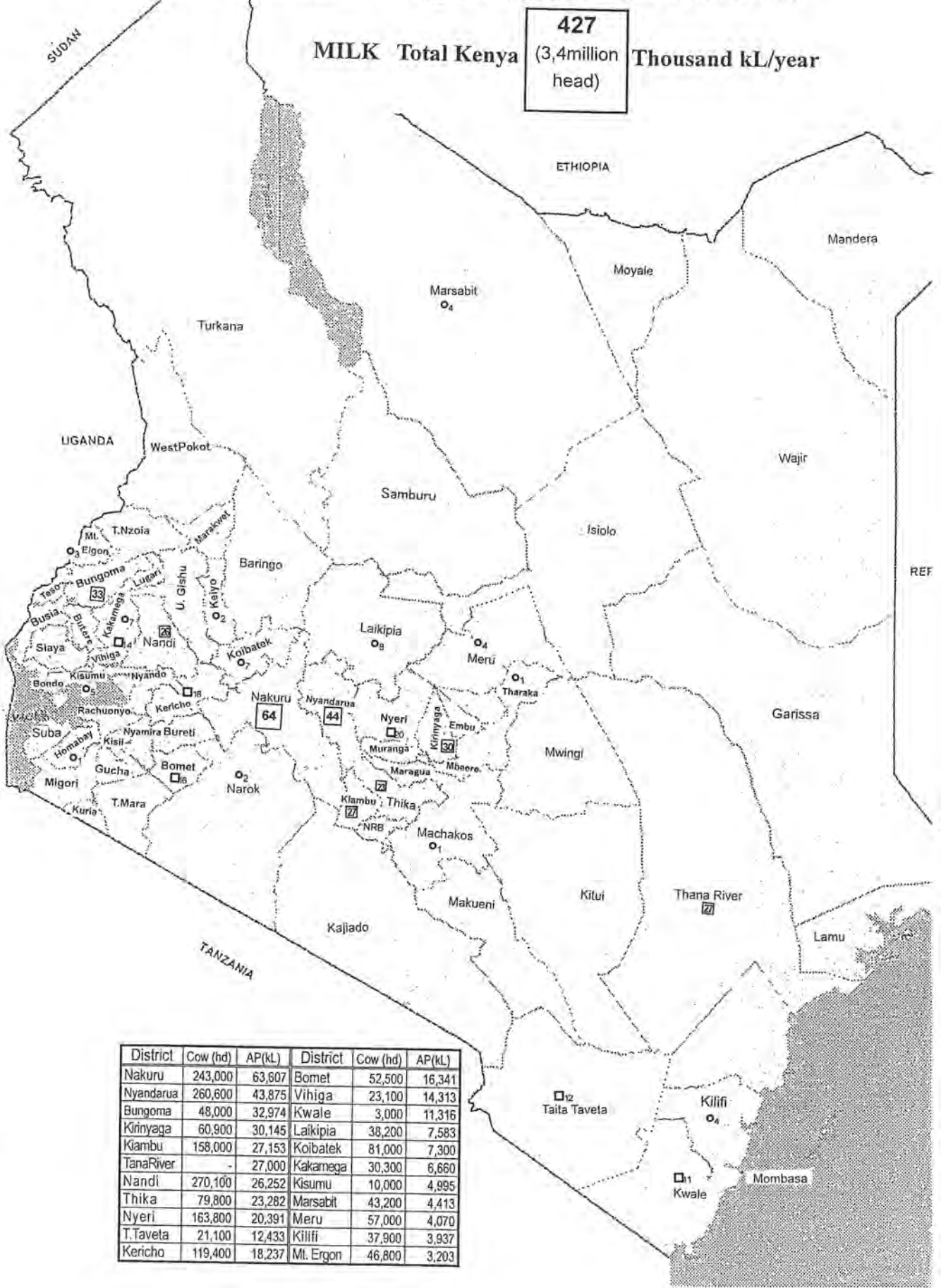


TUBERS					
District	Area(ha)	AP(MT)	District	Area(ha)	AP(MT)
Nyandarua	13,143	155,134	Embu	2,297	14,941
Kiambu	11,000	91,627	Mbeere	1,556	13,060
Nyeri	14,440	83,627	Laikipia	2,547	12,387
Nakuru	6,731	68,552	Kuria	1,281	11,884
Narok	4,070	36,638	Suba	700	10,170
Muranga	9,110	35,824	Bomet	1,039	9,444
Kisii	1,755	33,606	Busia	1,512	8,965
Thika	6,499	31,075	Makueni	635	5,921
Bungoma	1,945	25,830	W.Pokot	377	5,135
Kisumu	2,655	25,259	Keiyo	253	4,732
Marakwet	1,256	18,660	Embu	941	4,501

CASSABA					
District	Area(ha)	AP(MT)	District	Area(ha)	AP(MT)
Kilifi	8,484	84,838	Lamu	371	4,080
Kwale	7,741	66,098	Makueni	320	2,885
Busia	5,009	50,039	Kitui	403	2,706
Siaya	5,629	48,893	Thika	241	1,815
Teso	3,132	29,767	Mombasa	191	1,744
Bungoma	1,211	10,912	Baringo	130	1,453
Mbeere	474	5,384	Meru	161	1,369
W.Pokot	405	4,987	Marakwet	221	588
Kisii	211	3,524	T.Taveta	98	419
Embu	358	3,588	Mwingi	223	351

8. Distribution of Agro-industrial Production: Milk

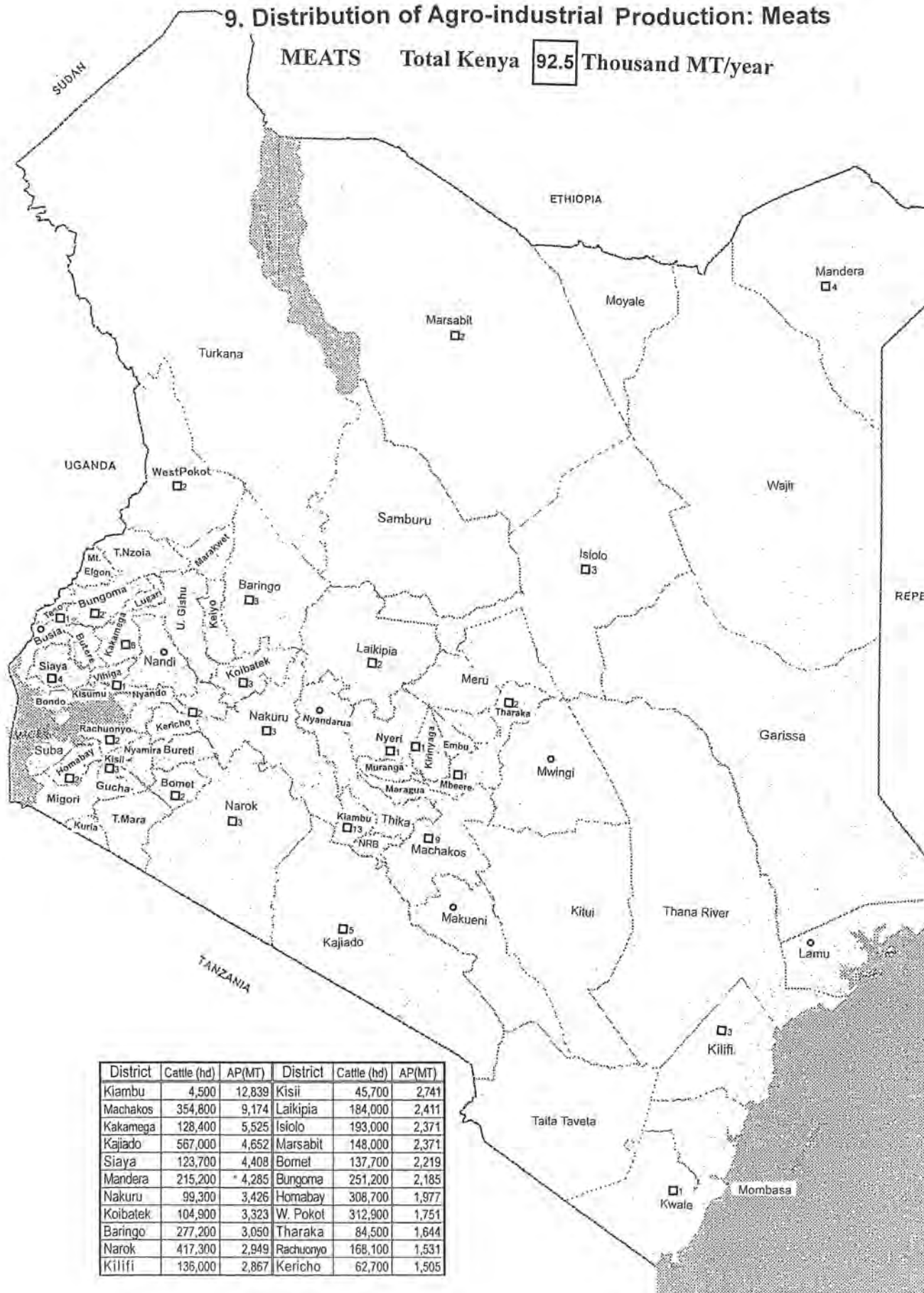
MILK Total Kenya (3,4million head) **427** Thousand kL/year



District	Cow (hd)	AP(kL)	District	Cow (hd)	AP(kL)
Nakuru	243,000	63,607	Bomet	52,500	16,341
Nyandarua	260,600	43,875	Vihiga	23,100	14,313
Bungoma	48,000	32,974	Kwale	3,000	11,316
Kirinyaga	60,900	30,145	Laikipia	38,200	7,583
Kiambu	158,000	27,153	Koibatek	81,000	7,300
TanaRiver	-	27,000	Kakamega	30,300	6,660
Nandi	270,100	26,252	Kisumu	10,000	4,995
Thika	79,800	23,282	Marsabit	43,200	4,413
Nyeri	163,800	20,391	Meru	57,000	4,070
T.Taveta	21,100	12,433	Kilifi	37,900	3,937
Kericho	119,400	18,237	Mt. Elgon	46,800	3,203

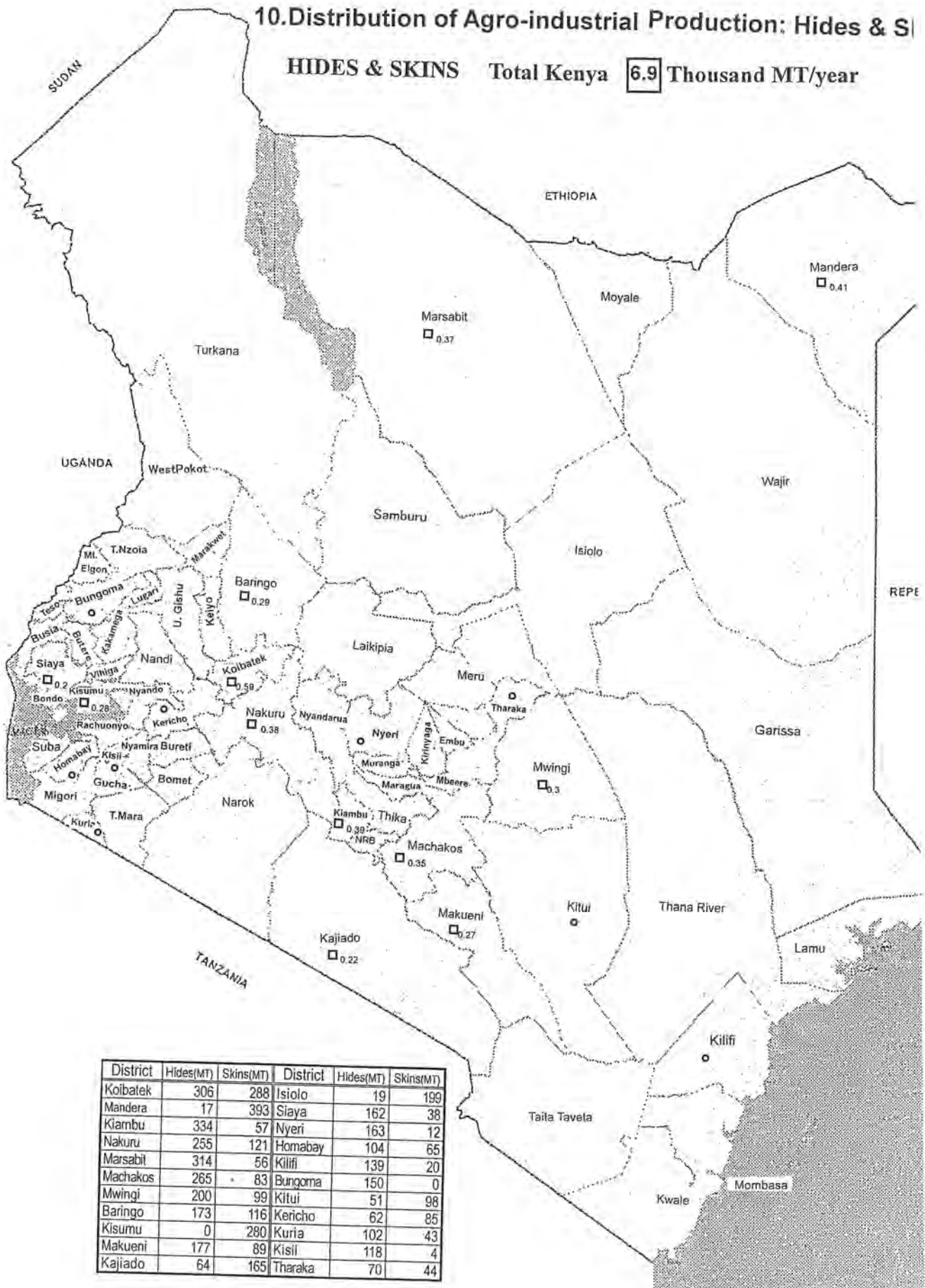
9. Distribution of Agro-industrial Production: Meats

MEATS Total Kenya 92.5 Thousand MT/year



10. Distribution of Agro-industrial Production: Hides & S

HIDES & SKINS Total Kenya **6.9** Thousand MT/year



District	Hides(MT)	Skins(MT)	District	Hides(MT)	Skins(MT)
Koibatek	306	288	Isiolo	19	199
Mandera	17	393	Siaya	162	38
Kiambu	334	57	Nyeri	163	12
Nakuru	255	121	Homabay	104	65
Marsabit	314	56	Kilifi	139	20
Machakos	265	83	Bungoma	150	0
Mwingi	200	99	Kitui	51	98
Baringo	173	116	Kericho	62	85
Kisumu	0	280	Kuria	102	43
Makueni	177	89	Kisii	118	4
Kajiado	64	165	Tharaka	70	44

KENYA ADMINISTRATIVE UNITS

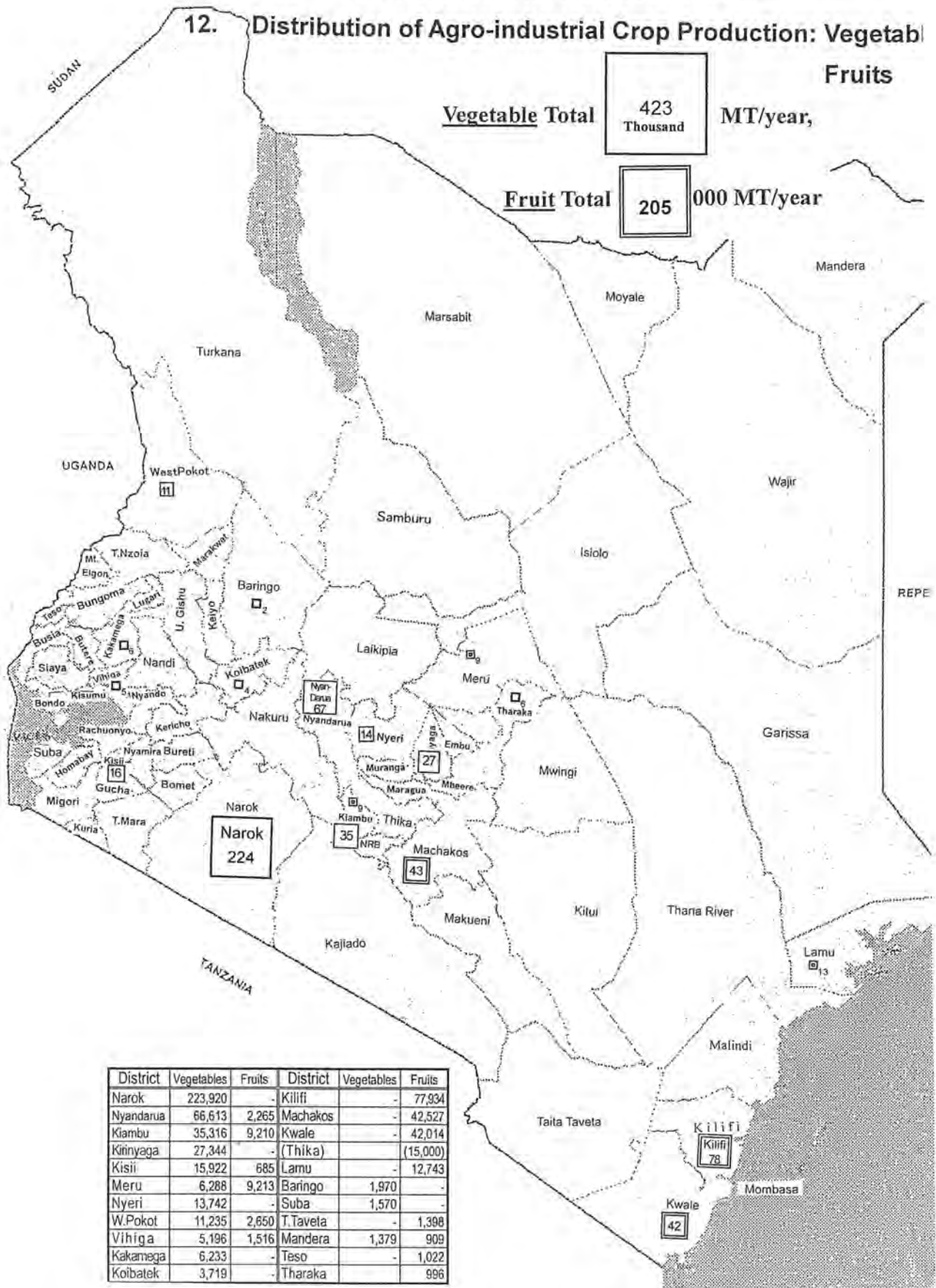
11. Distribution of Agro-industrial Production: Fish

FISH Total Kenya 53.4 Thousand MT/year



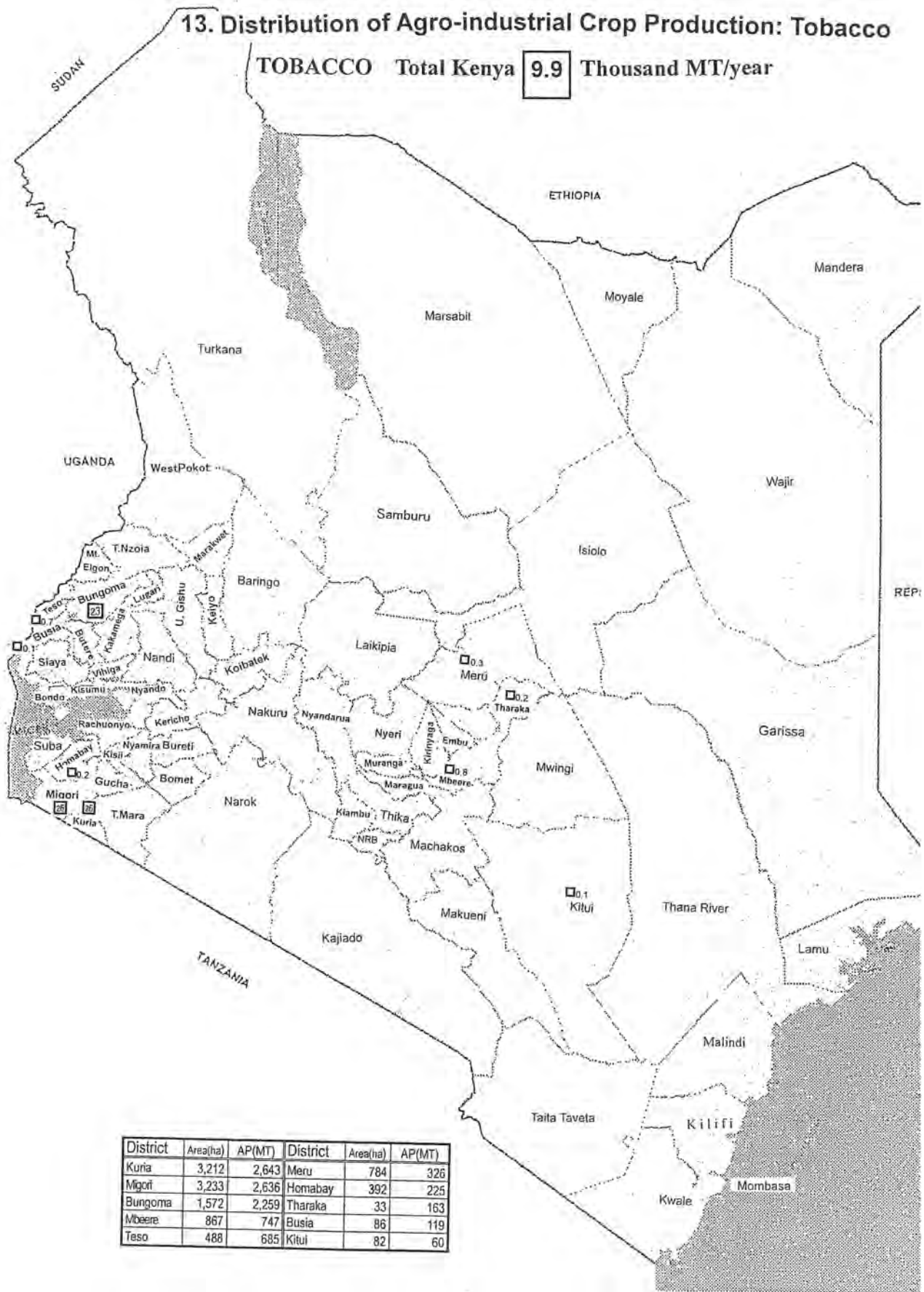
KENYA ADMINISTRATIVE UNITS

12. Distribution of Agro-industrial Crop Production: Vegetable and Fruits



13. Distribution of Agro-industrial Crop Production: Tobacco

TOBACCO Total Kenya **9.9** Thousand MT/year



District	Area(ha)	AP(MT)	District	Area(ha)	AP(MT)
Kuria	3,212	2,643	Meru	784	326
Migori	3,233	2,636	Homabay	392	225
Bungoma	1,572	2,259	Tharaka	33	163
Mbeere	867	747	Busia	86	119
Teso	488	685	Kitui	82	60

Annex 8 Record of Workshops

The First Workshop of MAPSKID held in Nairobi, June 2006

Introduction and Background of the Workshop

The Master Plan Study for Kenyan Industrial Development (MAPSKID) is an idea of the Kenyan Government that is pursuant to the Economic Recovery Strategy for Wealth and Employment Creation (ERS). The ERS through the Sessional Paper No. 2 states that Kenya should make the necessary steps in order to be industrialized by the year 2020. The Master Plan therefore seeks to transform Sessional Paper No. 2 into a feasible reality by planning for what must be done in Kenya in order to industrialize. This Industrialization also should not only be able to ensure growth in all Kenyan industries but must also be able to adapt and meet the global situations as they are now and as it further develops.

Objectives of the Workshop

1. To analyse the identified selected target sub-sectors.
2. Make the participants aware of all the stages before and after the Master Plan and what the plan hopes to achieve in Kenya as per the ERS.

Opening Ceremony

The workshop kicked off with various introductions. It should be noted that the Kenyan and the Japanese Government Representatives had the following things to point out and say to the participants.

The Commercial Attaché from the Embassy of Japan attended the opening of the workshop and gave a speech that highlighted the following:

- a) Applauded the Kenyan Government for the proposal to achieve industrialization by the year 2020;
- b) Thanked the Kenyan Government for approaching the Japanese Government in order to collaborate with itself and to come up with a Master Plan;
- c) Once the Plan is formulated and implemented, it will increase the Gross Domestic Product (GDP) and the diversification of the industrial sector in Kenya;

He hoped that the Master Plan would have a positive impact on all the Kenyan citizens by the target year of 2020.

The Kenyan Government on its part had the following things to say in a speech read on behalf of the Permanent Secretary in the Ministry of Trade and Industry. It highlighted the following:

- a) The genesis of the Master Plan was created by the framework that was provided in the Sessional Paper No. 2 that has its primary objective as stimulating growth in the Kenyan industrial sector;
 - b) Noted that the industrialization is the only way in which the country will be able to stimulate growth in the Economy;
 - c) That a Master Plan will be a great way of fast-track to the intentions of the Sessional
-

Paper;

- d) That Kenya reached out to Japan because of its cordial relationship. Kenya also hopes to benefit from the technical expertise and resourcefulness of the Japanese. This was said to be demonstrated by the fact that the Japanese have been able to compete and even surpass many other industrial countries.
- e) It was noted that similar workshops would be held with other stakeholders for the purposes of carrying forward with the MAPSKID.

Preparation for Discussion

The Study Team did brief introductions and they began the workshop by stating that the selection of the target sub-sectors that had previously been done using information they had gathered from the Government of Kenya through its various relevant agencies.

Sub-Sector 1: Food Processing

Sub-Sector 2: Automotive, Electronics and Machinery

Sub-Sector 3: Chemical, Pharmacy and Cosmetics

Sub-Sector 4: Textile and Leather

<Stated goals of the workshop>

The participants were expected to analyse the issues of each sub-sector and to make an eventual presentation of proposed action plans by the participants. To achieve these goals, the participants were divided into three groups in order to carry out the analysis. Three groups were formed and each comprising of:

- i. One facilitator;
- ii. A chair elected by the group;
- iii. A staff of the JICA Study Team.

Each group had an average of ten (10) people.

Methodology of Discussion

To kick-off the analysis, the Study Team held a brief familiarization of the methods that were to be used and have been used thus far in this process of MAPSKID.

<A. Cluster Analysis>

The system was defined as the industrial agglomeration that is related to various links that exist in a certain economy. It can also be defined as Geographical Concentration of Inter-connected companies and institutions in a particular field. An example of this was given in a food-processing cluster the following was also said about cluster policies, that they could be:

- With joint emphasis of on “joint actions” of sub-sector operating in a concentrated geographical



area (mostly SMEs). An example of this was India.

- With more emphasis on strengthening inter-linkages among the related industries. Examples of this were Malaysia and Thailand.

The Diamond Model that is put across by Michael Porter in his book *The Competitive Advantage of Nations (1990)* (Macmillan) was further elaborated by a specialist of the Study Team. It was said to have greatly revitalized and revolutionized the cluster idea. The Diamond Model has the following components:

1. Firm Strategy, Structure and Rivalry;
2. Demand Conditions;
3. Factor conditions;
4. Related and Supporting Industries.

All these four determinants are interlinked and are dynamically correlated in a cluster creating industrial competitiveness of a nation. (Find the attached appendix)

<B. Participatory Appraisal of Competitive Advantage (PACA)>

PACA is a method that was introduced to the workshop participants and it is a method where:

1. Views are shared and a consensus is built among the participants;
2. All the participants are involved in discussions;
3. The ideas shared are visualized thus the concepts are better understood.

All ideas were written on “post it” and posted on boards, following rules below;

- i. One sentence is written on one card;
- ii. Use a bold pen;
- iii. Write and post a card then discuss;
- iv. Participants can dress casually.

Find the attached appendix for details on the method as per the handouts given.



Stage One

The PACA system was used to analyse the SWOT (Strength, Weaknesses, Opportunity, and Threats) on each determinant as per the Porter’s Model. Using the points collected in the SWOT / PACA stage the participants then came up with suggestions on ways in which the Government can be able to improve any status of any determinants that were found to be lacking or in some cases non-existent.

Stage Two

While generating suggestion for the government in the first stage, the participants were to consider how making changes in one determinant would affect the others, thus demonstrating the dynamism of the Porter’s Diamond Model. And the participants were given a tentative schedule on how to proceed with their discussions as follows:

- i. Two hours for analysis of one sub-sector. There were four sub-sectors;
- ii. After conducting the analysis of the four sub-sectors, the participants were told to choose as groups the sector that they thought had the most potential and to give an in depth analysis of the sector chosen in the following ways:
 - a. Results of analysis they undertook;
 - b. Why they are suggesting that the chosen sub-sector has potential;
 - c. What Government or the Private Sector can do to improve the conditions of the “determinants”.

Facilitators were told to guide all the discussions but not to be presenters.

Stage Three

Each group gave a visual presentation of the work that they had carried out. All the groups were evaluated based on:

- i. Analysis and ideas presented;
- ii. Subjective and practical proposals for actions;
- iii. Active participation in discussions.

Based on the said evaluation one group was seen to be the best and was awarded with prizes to every member, the other groups were given a participatory certificates.

Outcome of the Workshop

The workshop was able to meet and surpass all its objectives and goals as three sub-sectors were discussed. The participants for the following sub-sectors put practicable, concrete action plans forward:

1. Textile sub-sector (Group One);
2. Automotive, Electronics and Machinery sub-sector (Group Two);
3. Food processing sub-sector (Group Three).

Award Ceremony

After presentation of the action plans on the final day of the workshop, Group One was able to emerge as the best group and was said to have presented a precise and detailed SWOT analysis which had a concrete action plan that was well presented despite the time constraints.

Suggestions from the Participants

The PACA method was said to be a good method and will be continued in Kenya. However, the participants wanted the units of analysis to be well thought out in the future so that the deliberations



can be more accurate and precise. Other participants thought that the Porter's model should have been well elaborated before the actual analysis.

Generalized sub-sector like Automotive, Electronics & Machinery is too wide to be analyzed adequately under SWOT/PACA. It was felt that narrowing down on it would have been better served. For example electronics alone, etc.

The points raised during the workshop do not show their weighted levels or depths. It is hard to know how much or the seriousness-level each affected the sub-sectors or the level they would help. It was, therefore, observed that this might be a PACA/SWOT weakness or failure.

Conclusion

In this report, it is important to note that the workshop was a big success, well attended by both the private and the Government of Kenya. Also:

- a. The deliberations were carried out in an organized and democratic manner and all group members participated;
- b. Action plans that were concrete and have potential to be implemented were put forward;
- c. The participants were able to use the PACA method relatively well to do their analysis.

If all the action plans put forward in each sub-sector are implemented then there is great potential for Kenya to leap / jump into the industrial age and thus reducing strife, poverty and unemployment.

Participant List

1) Wambui Ndungu	KAM
2) D. A. Polosi	KAM
3) David Opiyo	Kenya Industrial Estate (KIE)
4) A. Masika	KIE
5) David Mugambi	Kenya Investment Authority (KIA)
6) Guracho Abdi	KIA
7) Patrick Kuloba	KIRDI
8) Margaret Waithaka	EPZA
9) Peter Wainaina	EPZA
10) Dominic Muiruki	EPZA
11) Nelson Gaitho	KIBT
12) Eluid Moyi-	KIPPRA
13) Patricia Kimanthi	KEBS
14) Gerald Kimeu-	KBS
15) Nyachwaya P. M.	EPC
16) Robert N. Kasamu	Numerical Machinery Complex
17) Paul Kamau	UoN-IDS
18) John Ngari	KMCCI
19) Sammuell Mokaya	JKUAT
20) Robet Nderitu	CBS
21) Philip Musyoka	Ministry of Planning
22) David S. O Nalo	Permanent Secretary (MOTI)
23) Margaret Rotich	Director of Industries
24) Charles Mahinda	MOTI
25) Steven Odua	MOTI

26) Ongubo Nyakundi	MOTI
27) Pamela A. Dede	MOTI
28) David Magwaro	MOTI
29) Philip Wambua	MOTI
30) Hannah M. Kiare	MOTI
31) Nancy Muya	MOTI
32) S. B. Keter	MOTI
33) John Misiga	MOTI
34) Tabitha Kibogo	MOTI
35) Gregory M. Munyao	MOTI
36) Sammuel K. Munyao	MOTI
37) Haggai Onguka	MOTI
38) John Misiga-	MOTI
39) Winnie W.	MOTI
40) J. B. Keter	MOTI
41) Silas Kiragu	Department of Industry
42) L.G Njehia	Department of Industry
43) N. Gathika	Department of Industry
44) Ndira George	Department of Industry
45) Makoto Sakano	Embassy of Japan
46) Yoshiaki Kano	JICA Kenya Office
47) Kazuhiko Tokuhashi	JICA Kenya Office
48) Masaru Ishizuka	JICA Kenya Office
49) Anne Olubendi	JICA Kenya Office
50) Yoshio Nagamine	JICA Study Team
51) Ayako Ishiwata	JICA Study Team
52) Takashi Horiguchi	JICA Study Team
53) Tetsuya Fukunaga	JICA Study Team
54) Ryoko Hosono	JICA Study Team
55) Shohei Natsuda	JICA Study Team
56) Peter K. Malinda	JICA Study Team
57) Ninda Kangethe	JICA Study Team
58) Fabian Shyakaba	JICA Study Team

Result of Questionnaire on Workshop

Question 1 “Which sector do you work for?” Ministry was 52%, Public institutions for enterprise development/service was 24% and Private was 16%. The staff of MAPSKID tried to have the participants widely from the member organizations of the coordinating committee for the first workshop. As a result about a half of the participants came from the organizations other than the Ministries.

Question 2 “Which Group did you join in discussion?” Group 2 and Group 3 were 36% respectively. Group 1 was 24%. The attendants were divided into three groups at random. Each group consisted of about ten participants. The size of the groups seemed to be appropriate for discussion of this participatory workshop.

Question 3 “What time period have you attended the workshop?” The percentage of attendance was high in the morning on the first day and the last day, and it was a little bit lower in the afternoon and on the middle day. The percentage in the afternoon on the last day was very low but the reason was

considered that some participants forgot to check the item on the questionnaire sheets because almost all participants attended the afternoon session on the last day.

Question 4 “What is your overall impression on the workshop?” “Interesting” was 60% and “Very interesting” was 36%. The majority of the participants had good impression on the workshop. Their impressions had been anticipated because all attendants carried out the discussions actively and they got fruitful results.

Question 5 “Has the workshop increased your interest in MAPSKID?” “More interested” was 60% and “Interested” was 32%. Most participants increased their interest in MAPSKID. One of the objectives of the workshop, to make the participants aware of all the stages before and after the Master Plan seemed to be achieved.

Question 6 “Has the workshop deepened your understanding on the cluster analysis (Porter’s Diamond Model)?” “Understood” was 52% and “Well Understood” was 32%. It seemed that many participants were improved the understanding on this analysis. There were few attendants who had enough knowledge of the cluster analysis.

Question 7 “Do you think that outcome of analysis presented by the groups useful for planning the industrial development?” “Very useful” and “Useful” was 80% in total. The contents of the discussions were general since MAPSKID was just started; however the participants evaluated the results high.

Question 8 “Any comment or request to The Study Team?” Participants' opinions were divided into four sections in Table 2. The participants wrote down many opinions in the first and the second sections. Some participants commented that it was necessary for more detailed discussions to focus the subject on concrete sub-sectors. And some participants suggested that it would be effective to have discussions with the persons from private sector and local government officials in formulating the Master Plan.

Table1. Result of the Questionnaire on Workshop

<u>1.Which sector do you work for?</u>	Total	Percent(%)
1) Ministry	13	52
2) Research institutions / academics	2	8
3) Public institutions for enterprise development / services	6	24
4) Private	4	16
5) Others	0	0
6) No check	0	0
Total	25	100
<u>2.Which Group did you join in discussion?</u>	Total	Percent(%)
1) Group 1	6	24
2) Group 2	9	36
3) Group 3	9	36
4) No check	1	4
Total	25	100
<u>3. What time period have you attended the workshop?</u>	Total	Percent(%)
1) AM 26 th June, Monday	24	96
2) PM 26 th June, Monday	22	88
3) AM 27 th June, Tuesday	19	76
4) PM 27 th June, Tuesday	20	80
5) AM 28 th June, Wednesday	24	96
6) PM 28 th June, Wednesday	13	52
7) No check	1	4
Total (AM Jun 26 - PM Jun 28)	122	81
Total (AM Jun 26 - AM Jun 28)	109	87
<u>4.What is your overall impression on the workshop?</u>	Total	Percent(%)
1) Not interesting		0
2) ↑		0
3) Fair		0
4) ↓	15	60
5) Very interesting	9	36
6) No check	1	4
Total	25	100
<u>5.Has the workshop increased your interest in MAPSKID?</u>	Total	Percent(%)
1) Less interested		0
2) ↑		0
3) Fair	1	4
4) ↓	8	32
5) More interested	15	60
6) No check	1	4
Total	25	100
<u>6.Has the workshop deepened your understanding on the cluster analysis(Porter's Diamond Model)?</u>	Total	Percent(%)
1) Did not understand		0
2) ↑		0
3) Fair	3	12
4) ↓	13	52
5) Well understood	8	32
6) No check	1	4
Total	25	100
<u>7.Do you think that outcome of analysis presented by the groups useful for planning the industrial development?</u>	Total	Percent(%)
1) Not useful		0
2) ↑		0
3) Fair	4	16
4) ↓	10	40
5) Very useful	10	40
6) No check	1	4
Total	25	100

Table2. Comment or Request to the Study Team

<p>1. <u>The way of managing the workshop, etc.</u></p> <ul style="list-style-type: none"> • The time was limited, so the discussions should be allocated more fairly. • More time should have been allocated for discussions. • Discussions would have been preferred in different rooms. • Provide a room with adequate ventilation and some writing desks. • Try as much as possible to incorporate all the issues that have come up during the discussions as they all play an important part in coming up with a suitable Master Plan for the industry development in Kenya. • Should have given more information on porter's model of analysing sectors before broad discussions began. It seems they assumed all of us knew about this model in advance. • Pass the proceedings of the service to the persons who were needed. • Involve local officials in the actual study analysis and services. This will strength their capacity and future skills transfer.
<p>2. <u>Sectors, etc.</u></p> <ul style="list-style-type: none"> • Share widely with private sector to incorporate their views and ownership of the persons during the implementation. • More sectors should be discussed a good/better privatization during the writing of the Industrial Master Plan. • To involve private (Manufactures) sector in a similar workshop before settling on the target sub-sectors. • An excellent initiative : Serve in those stakeholders such as private sector in the next workshop. We need all players to own the process and the plan developed there of. • Food sector is very wide and possibly the study could address specific sub-sectors such as dairy, fruits and vegetable processing. • The sub-sectors should further be dealt with alone in order to avoid generalizations. This will enable suggestions and specific action plans forgetting specific sectors. • The various industrial stakeholders role in industrialization. • I think most outcomes are one of overviews or somewhat general. There is a need for weighted issues to be able to measure the outcomes. These weighted parts can help in prioritising the sub-sectors.
<p>3. <u>Master Plan draft, etc.</u></p> <ul style="list-style-type: none"> • Avail Master Plan Draft to participants for further input. • To avail the report of workshop to the participants. • A residential workshop would have born more fruits people would have given more input. • To consider getting the raw material to industry and freely sale of final product plan (Trade) is well activated in the Master Plan. Roles of Ministry of Agriculture, Industry and Trade should be clearly activated.

- Better articulation of process of Master Plan ; Reserved questions study were wishes answered.

4 . Impression and Request.

- The workshop was fairly O.K.
- Thank you very much for inviting me to this workshop. It was very interesting.
- Better briefing of facilitators.
- Provide participation stipend.

No comment.

Five participants didn't comment on this question.

The Second Workshop of MAPSKID held in Nairobi, December 2006

<Day One>

1. Opening

The meeting was opened by *Mr. Sindiga* who welcomed all the stakeholders from the public, private and academic sectors and all guests to the workshop & forum. He read Permanent Secretary Mr. Nalo's speech, which stated that the industrial master plan was expected to fast track the implementation of industrial transformation as outlined in the economic recovery strategy for wealth and employment creation and that it would realise one of the pillars of the vision 2030.

Mr. Makoto Sakano, the Second Secretary, Embassy of Japan welcomed all guests to the meeting. He gave a brief background of MAPSKID whose overall goal is to promote the industrial development of Kenya with emphasis on the target sub-sectors.

2. Presentation on the Manufactures Survey

Mr. Horiguchi of JICA Study Team made a presentation on the results of his field survey on the manufacturing sector. He made observation that most industries use old machinery.

Dr. Ogada of KIRDI recommended there should be more explanation on the way forward for the electronic industry in Kenya. Mr. Horiguchi was also asked if PCs have a viable local market without proper exporting strategy.

Mr. Horiguchi of JICA Study Team replied that Kenya can increase comparative advantages in PC production through establishing responsive supporting system. He added that generators such as solar panel should be marketed more to create demand for electronic products. He further argued that production of plastic and rubber goods that are used as parts for electronic equipment should be encouraged.

Mr. Mokaya of JKUAT wanted to know how Kenya's creativity compares with the developed countries' industry.

Mr. Horiguchi of JICA Study Team replied that value addition of the Kenyan manufactures is small.

Mr. Mokaya of JKUAT recommended Mr. Horiguchi to visit some of the lighting in Kariobangi and around Nairobi. He noted JKUAT has a working relationship with some of these SMEs.

3. Industrial Development Framework and Selection of the Target Sub-sectors

Mr. Malinda of JICA Study Team presented industrial development framework. He focused on Kenya's present industrial position. Its highlights included widespread poverty and little manufacturing sector's contribution to the GDP as was 15% in 2005. It also showed that employment rate was 3% in the formal sector and 13% in the informal sector. Further, a comparison with Egypt, South Africa, and other COMESA countries was shown. Also presented were: weak fundamental issues as per Michael Potter's Diamond Model, position of global competition, Kenya's inherent competitive advantages, importance of the private sector, strengthening industrial linkages, and

establishment of industrial belts and corridors.

Ms. Ayako of JICA Study Team presented on selection of the target sub-sectors. She highlighted the selection process.

Ms. Rotich of MOTI commented that the presentations described a good picture of the current status of industrialization in the country and the possible paths for moving on. She wanted the industrial sector stakeholders to carry debate openly and take concrete steps in moving forward in technology. Then, in places where industrial zones are coming up such as in Athi River, there should be an integrated approach that includes good infrastructure, social amenities like banks, schools, homes, hospitals, etc to serve not only the potential and existing investors but also the people living around there.

On improving the status of Kenyan industries, *Ms. Rotich of MOTI* talked of the need to move away from the use of old and or obsolete machines, or sometimes no machines, like a reference given by Mr. Horighchi. She further talked about targeting the Ministry of Agriculture to be on board as a stakeholder and pass some bills to develop cotton industry. The Cotton Board Authority through KARI can give certified seeds and JKUAT or KIRDI can recommend appropriate technology to ginneries, etc. She further talked of the need to stop importation of used agro-machinery in to the country. She also said paper production can be made cheaper and more competitive through better machinery, technology, etc.

Mr. Kimuri of MOTI felt that duty should not have dropped because industries would prefer to import raw materials than procuring locally. He suggested that duty be at 15% on semi-finished products and 25% on finished products. There is the need for MOTI to work with the Ministry of Finance to lower targeted tariffs. Furthermore, there is potential for growing sunflower, soya beans, etc to extract vegetable oil. We need R& D, financing, etc, that impacts crucial industrial areas and its commercialization.

Mr. Opiyo of KIE suggested that there was too much competition and repetition and that the need for more organisations among platform service providers. Also, industrialisation needed to be spread evenly, not concentrated in big cities and the infrastructure problem be tackled nationwide.

Mr. Mageto of MOTI inquired about incentives given by tariffs in other countries.

Mr. Malinda of JICA Study Team gave a comparison to India where stamp duty for industrial land purchase was waived or subsidized in various states so as to attract investment. He also suggested a national policy to minimize ministries duplication.

Mr. Shibata of JICA Study Team talked of palm oil imports from Malaysia where JICA had much success with the farmers. However, in Kenya small scale farms are long distances away from factories with infrastructure being in poor state.

Ms. Ryoko of JICA Study Team explained about related policies for industrial master plan such as PSDS, export promotion strategy, gender, MSME development, education, environment etc.

Mr. Kiragu of MOTI explained why there is less foreign direct investment in Kenya than in the

neighbouring countries because she has not fully exploited her minerals and other natural resources; yet, it is ahead on the private sector development compared to these neighbouring countries. Tanzania has discovered gold, oil and natural gas which provide many investment opportunities. Uganda has many industries left by fleeing Asians in the 1970s that now needed revival, hence attracting rehabilitative investments.

Mr. Ndira of MOTI noted that Kenya's service sector accounted for 60-70% of the GDP while her industrial sector being stagnant, yet was far from being a developed country for the service industry to be the key sector to drive the economy. There was the need for more information to show investment in the industrial sector compared to the service sector. Furthermore, he asked if the Study Team had identified some specific FDI target-areas. It was also noted that there was the need of a working definition of SMEs depending on the focus of research.

Ms. Ayako of JICA Study Team responded to the question of FDI saying that Kenya is not working hard enough to mobilise technical transfer through FDI. For example, in East & S.E. Asia, universities participate in transfer technology in varying degrees in tandem with that from FDI. They also supply highly skilled human labour which gives an advantage and incentives for higher production. For example, there are not many highly skilled workers in the pharmaceutical industry in Kenya. Most graduates opt to go into medicine to become doctors and not in pharmacy. Currently, the production activities in the pharmaceutical sub-sector are low value-addition just weighing, mixing, packaging, testing, and delivery. In Asia, there is a technological spin off as workers move from the multinational companies to other companies.

Mr. Malinda of JICA Study Team responded by saying that to develop, there was the need to upgrade/modernise rural and traditional technologies to prepare for further technology diffusion. Further, the contribution of technical high schools is indispensable for job creation, formation of foundations for technology transfer and absorption. This is important if the country is to benefit from FDI. He emphasised that most countries industrialised through FDI except Japan and South Korea where they relied on own-conglomerates. The S.E Asia model depended mainly on FDI or a hybrid of both. He also talked about the Japanese "technopolis" (tech-cities) concept where besides encouragement of high-tech industries to relocate to these, cities, institutions providing a one-stop place for SMEs to consult for various integrated services were also set up. Such institutions brought together the SMEs, universities, R&D institutions, government, etc.

4. Group Discussion

The participants were asked to form three groups where they would discuss topics of their choice on industrialization. The proposed topics are i) how to build "platform services" and ii) regional industrial development. The group discussion took place in the afternoon.

<Day Two>

Mr. Njehia of MOTI welcomed all the distinguished guests and members and thanked them for their attendance. He, then, urged members to finalise their group discussions and to start preparing for group presentations.

Group Presentations

(4) Group 3

Mr. Mugambi of KIA made a presentation on possibility of creating a one-stop platform service in Kenya. He started with looking at the present condition in support services delivery by the public sector, what services needed strengthening, duplicated public services, causes for this, and solutions. The group then focussed its discussion on how to facilitate the establishing of a one-stop “Platform”; obstacles to its establishments, solutions and immediate action to be undertaken.

Ms. Dede of MOTI asked if there were no acts for the microfinance sector.

Mr. Mugambi of KIA answered that the acts have not been finalised and organised because the bill was passed and signed recently.

Mr. Opiyo of KIE wanted to know why they laid too much emphasis on BDS; yet there were other areas that needed to be looked at.

Mr. Mugambi of KIA answered that there were other areas like ICT, R&D, financial, and insurance in the presentation.

Ms. Dede of MOTI inquired why it is necessary to coordinate BDS services because competition encourages improvement in services.

Mr. Mugambi of KIA answered that the many organisations do the same thing at a particular area; they need to distribute evenly to cover all areas because they serve the same purpose.

(5) Group 2

Mr. Opiyo of KIE discussed a number of issues at length those being; building a platform services, manpower and human resources, industrial information and extension, IPR, financial services, security, management and consultancy services, marketing and export promotion services, insurance, transport, standards with their identified services and list of the services providers respectively. He also talked about services that need strengthening, how to improve the services, platform implementation factors, and regional industrial development. The issue of the possibility of enough coordination was discussed at length where members felt that the Ministry of Trade and Industry has the capacity to follow the process, and various organisations assigned with various responsibilities should perform their work and do away with the idea of forming more coordinating bodies.

Ms. Dede of MOTI added that places that provide raw materials should be identified and industries taken to there for convenience.

(6) Group 1

Mr. Okech of JKUAT led the presentation of group one where he discussed issues on existing services and service providers, duplicated services, weaknesses in the service providers, recommendation integration of services into one platform, establishing one stop agency, regional industrial development, creating industrial belts and administrative changes to be done in the service providers sector.

A question was asked on why they had not selected local liquor for commercialisation.

Ms. Dede of MOTI replied that there was much local liquor available to many poor people, and neighbouring countries had legalised it. It was concluded that local liquor should be legalised and not criminalised.

Mr. Okech of JKUAT added that, centres for information should be spread all over the country for all people to be able to access them easily.

<Day Three>

Closing Ceremony

Mr. Nagamine of JICA Study Team announced that Group One won the first prize in the group presentation.

Permanent Secretary Mr. Nalo and Director Ms. Rotich presented certificates to the participants.

Permanent Secretary Mr. Nalo thanked all the participants from various organizations for attending the workshop that saw them put together ideas to help industrialise Kenya by the year 2020. He declared the meeting officially closed.

End

WORKSHOP (2) ATTENDANCE LIST

Name	Organisation	Remarks
Jerry Kugo	Ministry Of Trade & Industry	
Emmanuel Komora	Ministry Of Trade & Industry	
Samuel Mokaya	JKUAS	
Francis Nderitu	MOA	
Peter K Malinda	JICA	
Ayako Ishiwata	JICA	
David G Magawa	Ministry Of Trade & Industry	
LG Njehia	Ministry Of Trade & Industry	
S.B Keter	Ministry Of Trade & Industry	
JohnK Munguti	Ministry Of Trade & Industry	
Victor Mageto	Ministry Of Trade & Industry	
David Yongo	MLFD	
R A. Ng'onga	Ministry Of Trade & Industry	
B. Chesang	EPZA	
Fred Mungai	Ministry Of Trade & Industry	
Pamela Dede	Ministry Of Trade & Industry	
Onguso Nyakundi	Ministry Of Trade & Industry	
Anne Olubendi	JICA	
Erantus N. Kimuri	Ministry Of Trade & Industry	
Ryoko Hosono	JICA	
Mr. Shibata	JICA	
Ninda Kangethe	JICA	
Fabian Shyakaba	JICA	
Ogada Tom	KIRDI	
Rosalind N. Githinji	Ministry Of Trade & Industry	
Suleman Okech	JKOAT	
Maurice O. Otieno	Export Processing Council	
James T Gutuyu	CBOS	
G.P. Kalerwa	MOS&T	
N. Gakiha	Ministry Of Trade & Industry	
Benson Mapesa	MOM&ND	
Mary Kalerwa	Ministry Of Trade & Industry	
Paul M. Chege	KIPI	

Results of Questionnaire on Workshop

Question 1. Which sector/ Institution do you work for? Ministry was 66%, Research Institutions/academics - 11%, Public institutions for enterprise development/services - 19%, and Others - 4%. The team extended invitations to various sectors to try and involve many players.

Question 2. Which Group did you join in the discussions? Group 1- 22%, Group 2- 33%, Group 3 – 41%. Participants were randomly divided into groups for interactive discussions.

Question 3. What time period have you attended the workshop? The highest % attendance was on 5th AM when 96% attendance was recorded. However, some participants may have not handed back their questionnaire to have led to the lower percentage on 5th PM.

Question 4. What is your overall impression on the workshop? “Very interesting” was 56% and “interesting” was 44%. This shows that on the whole, the participants enjoyed the discussions and this could be seen from the way they participated in the discussions.

Question 5. Has the workshop increased your interest in MAPSKID? More interested was 78% while interested was 22%. This means that the workshop is having positive effects on the participants in as far as its purposes are concerned.

Question 6. How do you find the proposals for industrial framework, which was presented by Mr. Peter Malinda (AM, Monday)? 33% felt that the plan was good, 41% felt that plan was above average and 15% felt that the plan was fair. Further work could be put into the plan to increase acceptability.

Question 7. How do you find the selection of the target sub-sectors, which was presented by Ms. Ayako Ishiwata (AM, Monday)? Fair choice was 15%; above average choice was 44%; Good choice was 30%. 11% did not respond to the question probably because they were not in attendance during the presentation.

Question 8. How do you find the group discussions? ‘Good discussions’ was 67%; above average was 30%. Most participants contributed very fruitfully during the discussions, which shows that they rate the sessions very highly.

Question 9. Any comments or requests to the Study Team? Various comments and suggestions were recorded. Some participants commended the team for doing a good job, while others made suggestions and requests that they would wish the team to take into account in subsequent studies and workshops.

Table Results of the Questionnaire on Workshop

1. Which sector/ Institution do you work for?	Total	Percent(%)
1. Ministry	18	66
2. Research Institutions/academics	3	11
3. Public institutions for enterprise development/services	5	19
4. Private	0	0
5. Others	1	4
Total		
2. Which Group did you join in the discussions?		
1. Group 1	6	22
2. Group 2	9	33
3. Group 3	11	41
4. No Check		
Total		
3. What time period have you attended the workshop?		
1. Am 4 th Dec, 2006	23	85
2. Pm 4 th Dec, 2006	24	89
3. Am 5 th Dec, 2006	26	96
4. Pm 5 th Dec, 2006	25	93
4. What is your overall impression on the workshop?		
1. Not interesting	0	0
2. ↑	0	0
3. Fair	0	0
4. ↓	12	44
5. Very interesting	15	56
6. Not checked	0	0
Total	27	100
5. Has the workshop increased your interest in MAPSKID?		
1. Less interested	0	0
2. ↑	0	0
3. Fair	0	0
4. ↓	6	22
5. More interested	21	78
Total		
6. How do you find the proposals for industrial framework, which was presented by Mr. Peter Malinda (AM, Monday)?		
1. Poor plan	0	0
2. ↑	0	0
3. Fair	4	15
4. ↓	11	41
5. Good Plan	9	33
Total		

7. How do you find the selection of the target sub-sectors, which was presented by Ms. Ayako Ishiwata (AM, Monday)?		
1. Poor choice	0	0
2. ↑	0	0
3. Fair	4	15
4. ↓	12	44
5. Good choice	8	30
8. How do you find the group discussions?		
1. Poor discussions	0	0
2. ↑	0	0
3. Fair	0	0
4. ↓	8	30
5. Good discussions	18	67

Comments and Requests to the Study Team

- ❖ Participants should be kept updated on the progress of the study and implementation
- ❖ JICA Team should participate in group discussions
- ❖ Participants comments should be taken on board
- ❖ Implementation of Master plan should start
- ❖ Workshops should be done at different levels of Study
- ❖ There should be more work to impart knowledge on the process
- ❖ Workshops should take at least 3 days for better deliberations
- ❖ The implementation plan should be worked out
- ❖ Explore funds for implementation as earlier study on promotions not yet implemented
- ❖ The workshops should be held regionally
- ❖ The Study Team is doing a good job
- ❖ Existing policies should also be taken into consideration in the Master Plan
- ❖ The participatory approach used in the discussions is very good for getting information out of people
- ❖ Include SMEs in the study because the great potential for industrialization
- ❖ Constitute preliminary stakeholders' committee to spearhead the initiative
- ❖ More workshops are required
- ❖ Involve all relevant bodies and organizations to work together with the government
- ❖ Incorporate group reports in the plan
- ❖ Deeper study is required in various areas before MAPSKID is concluded
- ❖ Follow ups are very necessary

Annex 9 Record of Forums

The First Forum of MAPSKID held in Nairobi, December 2006

<AGRO-Processing and Agro-Machinery>

Chairman: Professor Odek, KIPi

1. Presentation of the Forum

The forum started with presentation by Mr. Nagamine who described the outline of MAPSKID including its aims and objectives of the study, target sub-sectors, study schedule, the workshop and forum schedules.

He was assisted by Mr. Shibata, who talked about; agro processing, agro machinery raw material production, contribution of manufacturing to GDP, the degree of economic contribution to manufacturing sector by field, labour productivity by manufacture, annual earnings of agro industry, trend of agro processing production index, trend of agro processed commodities, number of firms by activities, contribution to employment, wage paid by processing activities, informal sector contribution, MSE' s activities in food manufacturing/ marketing, formal employees upstream of agro-processing, structure of agro-industry, selection of key (priority) clusters in agro-processing, Kenya's five weaker points in cost chain, current problems faced by manufacturers and tentative conceivable measures.

Mr. Tamura assisted Mr. Shibata, who tackled agro machinery as a support to the agro processing industry. Under this, he mention issues in results of the survey conducted, progress of industry (case study) and major constraints in agro machinery.

Prof. Odek observed that Kenya as an agrarian society where focus on agro-processing and agro-machinery is needed. Our focus for industrial foundation is mainly Jua Kali and MSE that are not a stable base unlike in other developing countries where the villages and town workshops are the base. He challenged the participants to find a way to change our structure and move beyond raw material importation and its high costs.

Six cluster areas came up in Mr. Shibata's presentation:

- i) Fruits/vegetable
- ii) Tea/Coffee
- iii) Livestock (including leather)
- iv) Fish
- v) Beverages/spirits & vinegar
- vi) Vegetable oils/fat processing

Prof. Odek challenged the participants to discuss if this was viable? He asked whether Kenya should focus on fruits & vegetables. Further since Kenya could not be the jack-of-all-trades were these appropriate? Were more clusters needed to widen coverage?

The first comment came from Bridgeworks' s representative, who suggested the need for cluster focusing, need to be futurist in our thinking, need to concentrate on regional viable investment areas, domestic and international markets, e.g. since medicinal plants/traditional medicine is well received in many markets, encouraging their cultivation instead of their being degradation by traditional

healers. Also their commercialisation for such as aloe, neem, etc.

Prof. Odek referred back to Mr. Shibata's presentation of some relief measures: i. coffee processing at farmyard. ii. coffee. iii. ASAL exploration. iv. Nile Perch. v. upstream relief measures for sugar industry. 6. import substitution.

MOTI commented that cotton can be developed in arid areas, also cashew nuts and coconuts in the coastal area.

Kenya Gatsby also suggested Bio diesel/fuel where trees/plants can be planted in ASAL areas where production of sunflower and cotton seeds can be done on small scale.

Min. of Agriculture commented on the high cost of transportation of popular grains and cereals. Also, the ministry suggesting the exploitation of banana trees for fibre and paper production as well as the use of the silk machinery lying idle in Ka Bondo, Siaya. Some initiatives started by the Ministry of Agriculture include oil, seed and nut processing, fruits and vegetable processing on a high level, small scale yogurt production and small scale informal brewing using sugar.

KTDA cautioned that agro-processing requires huge amounts of energy. This called therefore for the agro-forestry sectors to balance the exploitation of the environment.

JICA wanted to know the criteria used to selecting the key clusters.

MOTI said livestock was chosen for its competitive advantage in developing ASAL areas. A lot of vegetables for oils and fats bias of jatropha exploitation in western, and fruits and vegetables go waste especially at the coast.

Min. of Agriculture suggested the need to add root-tubers to the clusters as they are widely consumed and also available.

MOTI also suggested the importance of creating national food security, and also to identify and map the regional division of the clusters. MOTI however cautioned on the high cost of sugar production.

KTDA answered that the cost of labour in Kenya is too high and was increasing every year while commodity prices mostly did not go up and that profit margins were neither improving. This situation was inefficient and needed rectifying.

ICDC added that the cost of money is a big issue. Many financial institutions were reluctant to provide funding and also their interest rates were high.

Kenya Gatsby explained their role in identifying MSMEs linked with higher institutions. They assist the MSMEs through tri-partite arrangements between the MSMEs, suppliers and buyers. Under the agreements, Gatsby establishes the amounts of funds needed, and then Gatsby pays the suppliers of the raw materials for what is supplied to the MSMEs and then recovers these amounts from the price paid by the buyers for the supplied products. This reduces the time lapse that can be costly and ensures that the MSMEs have capital at all times to produce and deliver products. The fee charged is from 2.5-2.7% with a 7-day to one month transaction time. No money is exchanged between Gatsby and the MSMEs. He suggested that this sort of thing needed *to be expanded and a stronger bond

between manufacturing and MSMEs encouraged.

However, there was the issue of conflicting laws and disharmony in policies and institutional framework., e.g. where MSME and SME issues are being handled by two different ministries, namely labour, and trade and industry.

MOTI also commented that productivity was a big issue. The Productivity Centre needed to be utilized effectively. Moreover, issues of quality and international recognition of Kenyan products needed to be sought. Furthermore, the importation of raw materials and low rate of machinery replacement were paramount issues to be ignored, e.g., the Muhoroni sugar factory still uses a firewood burning boiler that was installed in 1929. While, a ginnery in Nyanza was utilising machinery of 1959.

The Ministry of Agriculture suggested the establishment of rural technology centres to research on types needed and development of suitable machinery. These need to research technologies appropriate for specific rural settings, for example, solar dryers for fruits and vegetables.

MOTI also suggested the need to manufacture locally spare parts for the sugar industry, for example in Kisumu. Likewise, manufacture of machinery for the tea industry could be undertaken in the respective region.

JICA suggested the modification of school curriculum to provide education that provided foundation for appropriate technical knowledge requirement. This would assist in Kenyans having a better ability to choose and install the proper machinery and equipment.

Bridgeworks added that Kenya needed to find ways to adapt technology to suit its local needs. They furthermore said that there was a need for a policy to link commodity producers with processing industries.

Prof. Odek mentioned that in Japan Toyota gets its spare parts from various parts suppliers that include village-based SMEs where all the parts are standardized. However, in Kenya that supply-chain is missing. He further suggested the need for a definition of agro-machinery giving the example of fruit and vegetable agro-processing through canning and packaging was applied to add value but do we have such machines? from farm to store shelf, tractor to agro-processing machinery.

MOTI made a few points: 1. that the application of modern technology was low in the country making the market for agro-machinery to consequently be small. There needs to be a technology-driven market rather than a labour intensive one. 2. need for joint ventures to encourage technology transfer to improve the quality of local fabrications.

Dr. Moturi of KIRDI made a few comments; 1. in manufacturing, value addition is the key. There needs to be mass production of good quality products. 2. the need to address the issue of quality because Jua Kali was associated with low quality and inconsistencies. Improve designs, patenting, involve KIPI, KBS, KIRDI, etc. 3. the need for technology transfer from technology centres. Individuals have to access technology on their own as there is no hub for information. There are no experts to negotiate for technology transfer and no mechanism to upgrade technology. 4. KIRDI is

currently working with KARI and the Min. of Agriculture on manually operated chippers for root-tubers. A proto-type had been developed and was now being demonstrated at the Coast, Western Kenya and Nyanza (Kisumu). Also, there was a spinner being developed which would increase the value of ginned cotton. He encouraged the need for more machinery to be developed and positioned appropriately.

Mr. Keter was impressed by the presentation and had a few points to add to the items discussed. Those were; industries should be taken to where raw materials are but there are quite a few hindrances such as poor infrastructure, language barrier, occurrence of natural calamities like floods. Also, power in Kenya is quite expensive which makes investors to invest in other countries that have cheap power within the region. He noted South Asians in Kenya manufacture some types of tea machinery but their major problem was capital to buy input parts. He concluded by urging people to help phase out corruption that scares investors

2. Comments and Opinions to the Presentation

Mr. Odek, the director of KIPi chaired as the facilitator on the presentation for agro-processing and agro-machinery. He addressed the sector has a lot to be done to formulate actions of the sector. Mr. Keter, MOTI industrial dept. took initiative to prompt Q and A. The first theme discussed in the forum was 6 priority cluster fields proposed from the Study Team. The first topic was high electric price decided by KEC (Kenya Electric Company) gives detrimental effect on agro-processing in Kenya, a typical agricultural country that has to expand the basis of industrialization, though value addition of raw material anyway requires cheap inputs.

Mr. Robert, an NGO investor stressed importance of pharmaceutical industry and suggested to add this to the priority clusters, because farmers at large can participate in the collection and production of medicinal plants, bound not only for domestic market but also for export market as a form of use of larger scale of natural resources not competitive with ordinary cropping, useful for local health care.

Another opinion issued from the MOAR why not to add cotton in the priority cluster in spite of being a political, strategic crop as challenger of industrialization. Coconut planting along the coastal area has also potential. Market oriented manufacturing of bio-fuel and use of bio-diesel plants is another promising area as the substitute of fossil fuel. Sunflower is also an invest-oriented strategy crop. To minimize environmental degradation, use of agro-forestry trees is useful in marginal areas substituting firewood with bio-diesel and bio-fuel. As an opinion, why cereals are not included? As substitute of cotton, abaca and kinua (variety of banana tree) can be utilized. Hungry nation has resistance to allow sugar, even molasses to use as a material of ethanol. Is food crop's processing not included? It is extremely important for food security purpose to use food before processing to industrial commodities.

Area specification has significant meaning to enhance industry for maximizing the use of location advantage and it should be regarded in the selection of priority fields. As to Kenyan weak points, labor cost surging by 2% ~ 7% annually relative to rise in the level of commodity prices produced in

Kenya. However, in South Africa, companies pay Ksh 650 per day equivalent and they can afford because of economy of scale. In the factors that influence comparative competitiveness by country, cost of money is not included but in Kenya, enterprises must pay high interests for borrowed funds meeting running or starting cost, adding extra on the production costs. Availability and access of fund for micro and small enterprises are surely the constraint of their development. Rather than banks and other monetary institutions, Nakumat and other supermarkets can provide food suppliers funds for farm management in minimum and maximum level in order to ensure smooth procurement of daily delivery through their financial transactions.

Other constraints other than listed up in the presentation include idling period or too redundant transactions that causes large time lag behind its procedure to be cleared, invoice preparation, and everything takes much idling time that makes heavy handicap on Kenyan industrial activities. Money shortage suffering by MSE arises from lack of their collaterals.

As to productivity, both labor and capital aspects should be considered. Prior to considering productivity, one should pay regard on how to attain internationally acceptable quality of Kenyan products. Product quality derives from both technology and skill of labourers. In this context, Ministry of Labor should take part in this forum but today we cannot meet any representative here. To fulfil this quality requirement, stakeholders should make efforts to take necessary actions. Also, NGO's role is important to inject knowledge and techniques into the local production activities so that commodities with internationally acceptable standards can be manufactured among local firms.

As regards agro-machinery, also local factories quite often suffer from parts of their machinery. Local contents or locally available parts should locally be manufactures and supplied in response to demands arisen from local industries. For example, sugar cane harvesters require quick supply of spare parts in Kisumu sugar producing area but machinerisation in local field is too slow to procure them smoothly. Institutions should be created so as to make smallholders easier access to machinery.

New technology and related information should be transferred through the institutions like universities and research institutes to meet local needs/demand but so far the transfer flow has been too slow and hampered. Especially, techniques useful to mobilize low utilized local resources for example the domestically available raw materials of pharmaceutical industry such as *Croton megalocarpus*, *Artemisia*, *Ricinus communis* and *Toona azadirach*, should be disseminated among the population related to local industries for strengthening and widening supply basis.

Dr. Mutuuli pointed out that more technology should be supplied to agricultural activities but local fabrications proceed too slowly unless invited joint ventures bring suitable technology that meets and acclimatizes to Kenyan conditions. Beginning with simple machines like hand tractors, gradually higher-class machinery like 4-wheel tractors is intended to fabricate, then pursuit for scale of economy is considered for lowering production costs. Needs of agro machinery have ever been expanding in canning processing and manufacturers of can are also available in Thika. As an innovator of manufacturing machinery, role of KIRDI and KIPI should be important for the device and exploration of prototype one for application and trials to meet local needs. National federations and associations should take initiatives of inventing techniques and of technology transfer to Jua Kali

and small-scale industries that need them for grading up their ventures but can hardly afford to do basic or applied researches.

Dr. Matuuli also reiterated the importance of manufacturing manually operated tools/ kits from cheaper materials, especially ginning machines to furnish to cotton ginneries since MoAR and KARI require farmgate demonstrations of such locally manufactured machines to meet local demands in Kitale and Kisumu areas. As to development of textile industries, not only ginning but also spinning and weaving manufacturers to produce yarn / cloths should be exploited to supply textile materials to sewing and tailoring factories.

As regards measures to strengthen privatised state corporations like KTDA, current states thereof should be taken into consideration such as: lack of further technology, zero-rated equipment supply and limited export capacity in Mombasa (needing free-port facilities).

As concern assistance for industrialization of Jua Kali enterprises, such primitive industry for making lantern lamps or oil torches needs basic skills and sources of material supply. These enterprises with their base at local townships can absorb idling labor. Rate of supply of local contents should be enhanced as locally produced goods for smoother supply of parts / materials.

Questions asked to the participants

Any forum to discuss on these matters among ministries concerned is exigently required to make concerted actions to promote agro-processing because agro-manufacturing is supported by upstream and downstream chain of supply and marketing that are beyond reaching of MOTI alone. (Shibata)

Why Kenyan manufactured commodities are not salable in Kenya? Efforts by small scale machinery makers/ repairers are reduced in vain. (Mr. Tamura)

The agro-industry related government authorities should more listen to the voice of private industrial firms (especially those uttered by smaller scale enterprises) so that they are rightly reflected in the basic official policy frameworks. (Mrs. Hosono)

3. Private Sector Comments

KTDA commented on: 1. the issue of strategic partners to bring in technology. 2. equipment costs/taxation be lowered. 3. the need of a free port in Mombasa to facilitate exports. 4. transportation costs within Kenya were higher than shipping to overseas destinations a thing that needs to be addressed.

Kenya Gatsby commented on: 1. need for sub-contracting. E.g. a Jua Kali who is making components of lantern light for Comcraft. Those components then are assembled at Comcraft's factory. 2. General Motors is also considering sub-contracting the manufacture of spare parts to Jua Kali. This type of sub-contracting leads to more formal industries, skilled labour, quality improvement and efficiency.

Bridgeworks commented on: 1. the need for more local contents and tax incentives for such companies in order to increase nurturing. 2. increase of productivity and link wages to productivity. 3.

Zero rate VAT on electricity. 4. development of infrastructure especially in areas crucial to raw material production and their processing.

Mr. Shibata and Mr. Tamura's questions to the audience:

- i) What other forums could be provided?
- ii) Between which ministries was coordination helpful or not?
- iii) Why can't these pioneer industries sell much of their products?

Comments from MOTI, concerning Tealand Engineering which started in 1979 by Indians of Kenyan decent were importing parts until KTDA started buying their fabricated parts. Multinationals such as James Finlay also started buying their parts. The issue is proving that quality of parts and branding is pertinent to good sales. E.g. MOTI is marketing Muharata As to Posho Mills, before posho mills were brought from India.

The process of formulating a coordinating committee for MAPSKID forums will be held to involve all the stakeholders, ministries, state corporations, NGOs and private sector.

Prof. Odek also added that there was a great need to involve the local private sector inputs rather than multinationals for long-term strategising.

4. Question and Answer Session

The forum was declared open to anyone who had any question regarding the topics earlier presented. Prof. Odek chaired the session. A member wanted to know how Kenya could change its structure so that SME's can the lead to Kenya's industrialization. The reply was that, Kenya should focus on one clusters or sectors and use it as a key to industrialization, like focusing on the agricultural sector.

The issue of whether the clusters selected are acceptable or if there was a need to change them also came up. Different members contributed different opinions like; organizations needed to be futuristic in their thinking so as to be able to serve regional and international markets. There was the need to locate at raw materials sources. Exploit arid areas by planting crops that do well there, for example cotton, not forgetting traditional medicinal plants which have a wide market locally.

It was suggested that emerging products which can be marketable like bio – fuels from trees can be used to rehabilitate the arid areas. Also, growing of other crops like sunflower, that do well in arid areas but remember to balance environmental requirements with industrial requirements of energy. Participants thought there was need to emulate other countries that do not waste any raw materials for instance, using banana trees to produce paper.

However, authorities were requested to gather information on constraints and opportunities of the sector and know that grains are mostly consumed in Kenya so, an opportunity can be identified and subsequently exploited to help bring industrialization. Food processing should always be considered whenever considering or planning strategies for food development and not grains or raw foods only.

The need for regional sub-sectors mapping by the Ministry of Trade and Industry was mentioned as members argued that other sectors should be given prominence.

The challenges were also looked at in depth and possible solutions given. They included; importation of used machines which can be reduced by the greatest asset of industrialization which is to have more skilled man power. It was noted that the cost of labour was going up where as the product prices do not go up hence squeezing margins. Its remedy was to get processes that can reduce cost of labour.

It was found out that the cost of money was also high so there is little funding for business and if it is affordable, it is still higher than in many other countries. High electric power cost affects competitiveness and should be subsidized by using other power generating products. GATSBY representative saw the need to have a greater coordination between large and small organizations because most big organizations do not trust the small ones. Productivity needs to be espoused, goods produced should be of high quality and benchmarking enforced and policy framework should be harmonized in order to increase industrialization. Finally, people should have a positive attitude towards new ideas.

On agro machinery, it was suggested that there was need for rural technological development units; raw material importation depends on production and marketing productivity, while some of the imported machinery may not be suitable for local raw materials types. Also it was discovered that a lot of private sector companies are at liberty to choose what they want to manufacture and sell but many Kenyans have a low capability of choosing the right materials for use.

Universities were challenged to identify global and international cutting areas that need to be incorporated into their curriculum. Also there was the need to adapt certain machinery and equipment and know how they fit the traditional concept. Tear-down policy needs to be adapted while contractual laws which are weak need to be strengthened. On the other hand, members saw the need for mass production, having a system or experts who inform people on the upcoming new technologies.

The private sector had their contributions too. Having a strategic partners incorporated for rural areas investments, equipment coming in should be zero rated, facilitate the establishment of free port facilities when exporting goods, consultants to bring in elements of sub-contracting, ability to utilize innovation of skills, the government should be able to provide incentives in nurturing local content, VAT should be waved from electricity charges and finally, the cost of production should be tied to labour productivity to encourage competitiveness.

The floor was left for the presenters to ask participants any clarifications and questions. The presenters wanted to know why pioneer or indigenous-sector enterprises producing in Kenya do export their goods. And what consultative forums and firms should they be directed to for its observation. They were answered that there are more outlet markets out there and more committees should be formed from key stakeholders.

5. Closing

Mr. Nagamine once more briefed on MAPSKID's plan for Kenya.

End

<Electrics, Electronics / ICT>

Chairman: Dr. Moturi, KIRDI

(1) Presentation by Ms. Mugo of Power Techniques, Ltd.

Ms. Mugo of Power Technics, Ltd. made a presentation. The presentation raised proposals for developing knowledge based industries.

- i) Science and technology policies: i. Establish a comprehensive policy framework for industrial development. ii. Alignment of the education system in national universities with enterprises technical needs. iii. Interaction between industry and technical institutes. iv. creation of quality and sustainable manpower.
- ii) Creation of technology based enterprises: i. Growth in engineering and technology by encouraging knowledge intensive electronic technology. ii. Identify high tech enterprises and recognize the needs of growth in the field. iii. Enhance systematic growth of the technology based enterprises. iv. Market technology-based products.
- iii) Creation of national system for innovation management and R&D: i. Technology policies being a key issue. ii. Learn from Asian tigers to map out a strategy from grassroots. iii. Use of advanced manufacturing technology. iv. Technology inflows and commercialization of R & D activity. v. Tax rebates for R & D spending, R & D incentives.
- iv) Information technology for the growth of engineering enterprises: i. Network innovation/R & D between industry and institutions.
- v) Technology and KBS standards: i. necessary for systematic growth standards that should not be eroded in progress to rapid development. ii. Natural heritage and wildlife protection. iii. Encourage more but modern engineering education at university level.
- vi) Universities and power techniques linkages: i. training students on attachment each year from universities and polytechnics. ii. Memorandum of agreement with universities. iii. Professors and lecturers attached from Moi & JKUAT universities.
- vii) Incubator of knowledge-based industry: CNC, CAD, CAM manufacturing systems, robotic wiring machine.

(2) Issues on counterfeits

Mr. Mageto of KIPPI brought up some key factors. He pointed out that 80% of products consumed are counterfeit; however, lack of material registration causes difficulties in identifying sources of the counterfeits. Although issues on counterfeit are fairly addressed in Kenya, there is no actual planning how to phase out imitation products. He argued that following needs to be addressed.

Who is responsible? What needs to be done? Where are the sources of counterfeits? Level of technology? Do we have trademarks, names that can be sold locally or regionally?

Mr. Kagota of Siemens suggested a bridge between the technology the private sector is using and technology used by the government to reduce the cost of communication; e.g., convergence, VOIP. Banks were using IPBX sharing technology across branches while government was tendering analogue lines which are being phased out by Telcoms. Furthermore, ICT infrastructure in rural areas

needs to be improved to reduce the cost of accessing voice and data. Alternative source of power in rural areas also required. Furthermore, zero-rating of ICT products can reduce counterfeiting. Standards need to be put in place.

Mr. Mugambi of KIA commented further that Kenya needed an image of and attitude for quality and to establish brands. FDI could speed up development of the ICT/electronics sector. Reduction of the cost of manufacturing also needed. He argued that zero-rating of import duty would help to increase consumption but discourages domestic production. Instead of zero-rating, it was suggested to keep income tax low and withholding tax high. Build brand recognition; “stealing a brand vs. stealing technology”. Quality assurance and KEBS diamond mark needs more marketing to build its credibility worldwide.

MOTI had a question on how to integrate ICT to improve MSME productivity.

Ms. Mugo of Power Technics said that they have introduced software products such as Pastel, which can aid MSMEs in accounting.

(3) Possibilities of increasing local production

Dr. Moturi asked what the private sector was looking for from the government and whether there were any market information issues sought.

Mr. Kagota of Siemens answered that chances are 50-50. Mecer EPZ had to pay 2.5% levy to the government which made it uncompetitive to imports from Asia. Assembly is possible; however, manufacturing can not happen unless we bridge the gap between technology in private sector and government response, and that will be a long process.

Mr. Pillay of International Energy Technic commented that capacity of Kenyan manufacturers is too small. They can be successful through adding values to components such as local switch boards and industrial automation. Training needs to be improved as no relevant courses were being offered. It is time consuming and expensive to send people abroad for training. There is too much importation of services. Although assembly is possible, there needs to be relevant technical education. The government should offer assistance to associated training.

Ms. Ayako of JICA Study Team requested more comments from the private sector concerning Mr. Horiguchi's observations that there are potentially many local manufacturers, which could supply to electric equipment assemblers.

Mr. Singh of Plas-kit commented that most moulds used to come from Japan before it started manufacturing moulds in 1997. His company is now able to manufacture any plastic mould needed. They had invested heavily in, of which they were pioneers, CNC machines to cut metals and make different shapes since 2002. Their quality and capacity are high but have not yet been exploited to the fullest. Therefore, he considers that potential is high in Kenya for local manufacturing, but training needs are huge to make this happen.

Ms. Mugo of Power Technics commented that Kenya has the potential for manufacture but needs to channel its efforts in the right direction. Furthermore, the cost of production may be a hindrance.

Mr. Singh of Plas-kit added that they can produce metal frames with the metal press.

Ms. Ayako of JICA Study Team commented that 8 years ago she had done a survey on African entrepreneurs and found several of them to have had such potential even though most of them were not well known. She identifies the similar problem here: i.e. capacity of local manufacturers is ignored.

Mr. Odula of Mecer East Africa added that they are trying to empower locals by assembling computers in Kenya, but it is not economically viable to manufacture parts. Mecer plans to have a long-term commitment in Kenya as they have acquired land and established a new plant in Parklands. They also set up an R&D facility. Mecer also collaborates in the Madaraka One project, which intends to manufacture local computers. It is now in the tendering process. So far, parts were being imported for university students to assemble. He feels that quality control has to be ensured. Building machines in the EPZ was very expensive for Mecer as far as customs, etc, were concerned. Mecer had to move out from EPZ and relocate back to South Africa. Recently they have been setting up assembly work once more outside EPZ. They have found it harder to do brisk business in the region.

Dr. Moturi asked what recommendations could be given towards a phased program to build components locally.

Mr. Odula of Mecer East Africa answered that the capacity of local firms is good. e.g., moulds for plastic parts for computers such as castings. But information was lacking.

MOTI also commented on value-addition and asked the audience why they did not have faith in what we do locally.

Mrs. Arara of East African cables joined gave a few points:

- i) Kenya has highly trained skilled labour with high human capacity, which could not be absorbed anywhere.
- ii) The biggest challenge was energy, e.g., Athi River Mining set up a factory in Mombasa where it had to pay for 3 power sub-stations. Furthermore, enterprises can not grow in capacity when running on generators for long durations.
- iii) East African Cables has had to put up one sub-station with additional generators for its new factory on Addis Ababa Rd.
- iv) It was also observed that graduates from the JKUAT have a lot of theoretical knowledge but no practical experience, making it time consuming to re-train them. Furthermore, they are taught old theories not useable for global targeted businesses. Private sector needs to be more involved with the universities and with the government.

JKUAT added that a considerable amount of components can be manufactured locally. JKUAT was partnering with some MSMEs and a few of their problems had been dealt with such as taxation. JKUAT does not have high skill areas for sending its students on attachment. It did do a few assemblies for Madaraka One and found the quality was good upon their testing. Additionally, the curriculum is being reviewed to meet the current needs between present to 2010.

Ms. Rotich of MOTI said MOTI was trying to gather all the statistics to capture data of the industry. She urged the private sector to vocalize to government their needs. PSDS goal was to create a favourable investment climate for the private sector like improving energy supply, good infrastructure, and favourable taxation. She said a major problem was creating networking.

Mr. Mugambi of KIA commented that the capacity was there but the following needed to be addressed.

Market, creating a local market

- i) reliable supply and maintenance
- ii) guarantee
- iii) incentives for local companies to buy machines with local inputs

Mr. Ojuku of JICA Study Team explained that there was capacity to manufacture printers locally as per Mr. Horiguchi's observations as 65% of the printer parts can be manufactured locally from available plastic, rubber, metal, labor, etc.

(4) Training and private/government partnership

Mr. Otieno of EPC would like the government to partner with the private sector in providing funds and marketing abroad such as in Europe. Furthermore, there is possibility of establishing ICT superhighways and industrial centres similar to the cases in the Silicon Valley in California, Academic centres of excellence in Bangalore, India, etc. He also mentioned that in the past we had Makerere in Uganda for Medicine, Dar es Salaam for Law and Nairobi for engineering.

Ms. Ayako of JICA Study Team added a serious problem in technical education whose curriculum for industrial training has not been revised for the last 15 years, and teaching equipment is out-dated.

Dr. Moturi highlighted the partnership between Moi University and Safaricom to provide a curriculum in Telecommunications engineering.

Ms. Ryoko of JICA Study Team commented on the industrial levy where employers pay levy to get workers trained while it was not easy for the government to provide training that meets the ever changing needs of the private sector. It was more rational to allow the private sector on board in curriculum development for HR development. Government can focus on basic education while the private sector can focus on value added education. Challenges are how to improve on the levy system? How to increase collaboration between the academic and the private sectors?

Mr. Kagota of Siemens suggested streamlining the Min. of Information and Communications as its few departments were scattered. e.g., directorate of communication was under OP.

Ms. Rotich of MOTI asked for a round table where PSDS could be used as a tool for partnership.

Ms. Dede of MOTI suggested the need to associate our brands with quality, providing more marketing information and making a map of key players maybe through a website. On the other hand, the private sector may find it hard to give the government information because of suspicion towards the government.

Ms. Ayako of JICA Study Team was doubtful that the companies are actually suspicious enough to provide the government with their information, which can be of their own benefits.

Mr. Singh of Plas-Kit felt cumbersome when filling some registration forms or too detailed questions, which are more than enough for registration purpose. However, he agrees that he would provide information if necessary. He said there were only 4 plastic mould manufactures with little training was available for their workers.

Mr. Pillay of International Energy Technic also said that he would happy to collaborate in providing information.

MOTI proposed an idea to create a network for the registered companies to enable registration over the Web. Involvement of KAM is also needed to bridge the gap between the government and the private sector as well as the Jua Kali Association, FKE, etc.

Ms. Ayako of JICA Study Team asked Mecer to highlight the obstacles faced as a new investor to Kenya.

Mr. Odula of Mecer pointed out the following: the government would make promises but not deliver, too frequent power outages, and no harmony in taxation. 98% of employees in Mecer are Kenyans. Mecer plans to expand more. It is hoped that the government would see these acts of good faith and extend some preferential treatment in reciprocation. Mecer warned that the dumping of used computers was not empowering Kenyan people.

Ms. Rotich of MOTI said that the government was working to address counterfeit issue. She also reiterated that electronic/electric counterfeits were very dangerous for the economy alongside safety issues. A bill was being drafted by government and was now at the AG to address this.

Mr. Pillay of International Energy Technic suggested access to funding which could encourage small service companies to get into manufacturing.

Mr. Nagamine commented that Kenya's synergies with the East Africa Community and the COMESA had been considered by the study team. One team member was in charge of trade and investment and was studying the data which would be reflected in the report.

Mr. Odula of Mecer called for centralized body to address needs of ICT industry.

Mr. Pillay of International Energy Technic said that market size was a challenge and that his company had to go regional. However, countries like Egypt have cheaper exports while Kenya does not have the raw materials nor trained manpower.

(5) Measures for developing the electric, electronic sub-sector

Participants suggested bridging between the technology in the private and government sectors, needs to reduce bureaucracy, zero rating ICT products, linking national branding and regional branding, promulgating the role of FPI in speeding up manufacturing electronic products, incentives to attract investors, setting up a manufacturing base for electronic goods, reducing cooperate tax for industries, increase withholding tax, working on quality assurance and brand recognition.

Further, education institutions should emphasize on sciences and maths in their syllabi. There is also the need to work as a team to exploit different strengths, adding values to products that are to be exported, focusing and channeling efforts in the right direction, increasing Kenya's market size, sharing information on tips for industrialization from other countries, and having a website for marketing products.

End

Agro-processing and Agro-machinery Forum Attendance List (Additional)

Name	Company	Address
Peter K. Malinda	Jica	
Otieno Odek	KIPI	
R.A Ng'ong'a	Ministry Of Trade & Industry	Box 30418 Nrb, Tel.315001
F.N Nderitu	MOA	
Elizabeth Kamau	MOA	
Pamela Dede	Ministry Of Trade & Industry	Box 30418 Nrb, Tel.315001
Anne Olubendi	Jica	
Japhet Kahindi	ICDC	
LG Njehia	Ministry Of Trade & Industry	Box 30418 Nrb, Tel.315001
S.B Keter	Ministry Of Trade & Industry	Box 30418 Nrb, Tel.315001
D.G Magwaro	Ministry Of Trade & Industry	Box 30418 Nrb, Tel.315001
Tom Were	G GI	
Milton Lore	BWA LTD	
Jerry Kugo	Ministry Of Trade & Industry	Box 30418 Nrb, Tel.315001
Emmanuel P Komora	Ministry Of Trade & Industry	Box 30418 Nrb, Tel.315001
John K. Munguti	Ministry Of Trade & Industry	Box 30418 Nrb, Tel.315001
Mourice O. Otieno	EPC	
Rosalind Githinji	Ministry Of Trade & Industry	Box 30418 Nrb, Tel.315001
Kirimi Nyowere	KTDA	
M.C Rotich	Ministry Of Trade & Industry	Box 30418 Nrb, Tel.315001
Onyubo Nyakundi	Ministry Of Trade & Industry	Box 30418 Nrb, Tel.315001
Fred A. Muncha	KIPPRA	

Electrics, Electronics / ICT Forum Attendance List (Additional)

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Victor Mageto	Ministry Of Trade & Industry	0721925443,
Iqbal Singh	Plaskit Kenya	
Ken Kagota	Siemens kenya	
Rajesh Pillay	Int. Energy Technik	
Olga Arara	East Africa cables	
George Odula	Mercer East Africa	

Results of Questionnaire on Agro-processing and Agro-Machinery Forum

Question 1. Which sector do you work for? Ministry was 69%, Research Institutions/academics - 8%, Public institutions for enterprise development/services - 15%, and Others - 8%.

Question 2. What is your overall impression on the forum? "Very interesting" was 30% and "interesting" was 53%."Fair" was 15%. This shows that on the whole, the participants enjoyed the discussions. The discussion during the forum were participatory and the participants were enthusiastic.

Question 3. Do you think that the forum has articulated strategies for strengthening the agro-processing and agro-machinery sector? 'Well discussed' was 15%; above average was 67% and "Fair" was 15%. This must have been due to time factor because participants felt that they needed more time for the discussions.

Question 4. Any suggestions for development of agro-processing and agro-machinery sub-sectors? There were various comments and requests from this forum. Participants had various view on the way forward and priorities towards industrializing Kenya.

Results of the Questionnaire on Agro-processing and Agro-machinery Forum

1. Which sector/ Institution do you work for?	Total	Percent (%)
1. Ministry	9	69
2. Research Institutions/academics	1	8
3. Public institutions for enterprise development/services	2	15
4. Private	0	0
5. Others	1	8
Total	13	100
2. What is your overall impression on the workshop?		
1. Not interesting	0	0
2. ↑	0	0
3. Fair	2	15
4. ↓	7	53
5. Very interesting	4	31
6. Not checked	0	0
Total	13	100
3. Do you think that the forum has articulated strategies for strengthening the agro-processing and agro-machinery sector?		
1. Poor discussed	0	0
2. ↑	0	0
3. Fair	2	15
4. ↓	8	62
5. Well discussed	2	15
6. Not checked	1	8
Total	13	100

Suggestions for the Development of the sub-sectors

❖	Develop infrastructure for ease of communication in resource bases
❖	There should be available, sources of easy and cheap credit
❖	The Jua kali sector contribution should be taken seriously and efforts should be made to improve on Jua kali technology
❖	Packaging and service industry should be developed first
❖	The Government. Should act on both cost and availability of power
❖	There should be improved accessibility to water sources
❖	There should be clear criteria on sub-sector selections
❖	There should be introduced, cross cutting in sub-sector discussions
❖	There should be more emphasis on value chain analysis
❖	Issues of quality control are very crucial
❖	Technology of agro-machinery is very important
❖	Include more sub-sectors
❖	Sample local innovations and encourage improvement
❖	Encourage imitations
❖	Processing should be done at source of raw-material
❖	There should be more private sector involvement
❖	Research and development for value addition should be increased
❖	Government should remove tariff barriers
❖	Encourage local based industries
❖	There should be stronger linkages between stakeholders and more consultative forums.

Results of Questionnaire on Electrics and Electronics / ICT Forum

Question 1. Question 1. Which sector do you work for? Ministry was 47%, Research Institutions/academics - 5%, Public institutions for enterprise development/services – 24%, Private Manufacturers was 12%, Private Service was 12%. There was wide representation in the forum.

Question 2. What is your overall impression on the forum? “Very interesting” was 35% “Interesting” was 53% and Fair 12%. The discussions during the forum were participatory and the participants were very active in discussions.

Question 3. Do you think that the forum has articulated strategies for strengthening the electric and electronic sector? ‘Well discussed’ was 11%; above average was 41% and “Fair” was 23%. 4 respondents did not check the responses for the question. This must have been due to time factor because participants felt that they needed more time for the discussions.

Question 4. Any suggestions for development of Electric And Electronic sub-sector? There were various views presented by the participants.

Results of the Questionnaire on Electrics, Electronics / ICT Forum

1. Which sector/ Institution do you work for?	Total	Percent (%)
1. Ministry	8	47
2. Research Institutions/academics	1	5
3. Public institutions for enterprise development/services	4	24
4. Private	2	12
5. Others	2	12
Total	17	100
2. What is your overall impression on the workshop?		
1. Not interesting	0	0
2. ↑	0	0
3. Fair	2	12
4. ↓	9	53
5. Very interesting	6	35
6. Not checked	0	0
Total	17	100
3. Do you think that the forum has articulated strategies for strengthening the Electric, Electronic/ICT sector?		
1. Poor discussed	0	0
2. ↑	0	0
3. Fair	4	24
4. ↓	7	41
5. Well discussed	2	11
6. Not checked	4	24
Total	17	100

Suggestions for the Development of the Electric, Electronic/ICT sub-sectors

- ❖ Power cost and availability should be addressed
 - ❖ A specialized legal body should be formed to spearhead policy development in the sub-sectors
 - ❖ Strengthen information gathering, processing, storage and dissemination process
 - ❖ Tax rebate incentives by government
 - ❖ Collaboration between the government and private sector.
 - ❖ Creation of large regional markets for Kenyan industries
 - ❖ Make relevant training curriculum according to current industrial needs
 - ❖ Improve security situation
 - ❖ Facilitate international industrial linkages
 - ❖ Exploit capacity in packaging and assembly first
 - ❖ More sub-sector players should be involved in discussion processes
-

The Second Forum of MAPSKID held in Nairobi, February 2007

<AGRO-Processing and Agro-Machinery Forum>

The forum started by *Mrs. Rotich, Director of Industry*, making an opening speech and some of the major points she talked about included:

- ✓ The main reason that this forum is being held is because of the Kenya Vision 2030 and we should not lose hope.
- ✓ Ministry of Trade and Industry wants to partner with the private sector and it would be privileged so as to ensure the vision 2030 is realised and accomplished.
- ✓ So as to ensure the vision 2030 is realised, the government is committed and therefore support is being provided from every Ministry in terms of infrastructure and much more.
- ✓ Kenya Private Sector Development Strategy is addressing issues on investment, production, institutions strengthening and security. All these factors will lead to the realisation of the vision 2030.

Mr. Nagamine, MAPSKID team leader, followed by elaborating on the main purposes of the Master Plan. He also explained some issues on agro-processing. These included;

- ✓ The main area identified to be discussed in the forum was the promotion of agro-processing in the rural or semi-urban setting since this is very crucial for industrial development. The main reasons why this was selected is:
- ✓ The fact that Industrial sector requires a sizable market and with majority of Kenyans practising subsistence farming, it is difficult to find the accumulation of wealth that allows people to purchase anything more.
- ✓ The fact that many commodities are not available or are sold at a very high price.
- ✓ Therefore the main aim of promoting agro-processing is to empower the parties involved to be able to generate additional income through off-farm activities.
- ✓ For the above reasons, we believe its necessary to facilitate the development of a small-scale agro-processing industry, but we should ask ourselves, how do we do this? And that is the main reason we are having the forum.

PRESENTATION BY MR. SHIBATA AND MR. TAMURA ON PROMOTION OF AGRO-PROCESSING IN THE RURAL AREA

PRESENTATION BY MRS. JANE MUNG'OMA FROM KENYA GATSBY TRUST

Mrs. Mung'oma from Kenya Gatsby had a presentation about the experiences they have had in promoting agro-processing from recent work done in Malindi. The main reason why they chose Malindi is because of the poverty in this area.

The reasons why they chose agro-processing included:

- ✓ Income generation
- ✓ To reduce post harvest wastage
- ✓ Enhance food security
- ✓ Livelihood improvement

She also stated that 60% of the labour force in Sub-Saharan Africa finds part of its work in small scale food processing and majority of them are women.

What works for rural setting?

- ◆ Integrated Agribusiness interventions development of mechanisms for the integration of producers into the value chain e.g. contracts, associations, networks, clusters etc.
- ◆ Development of service hubs and systems that support the initiatives (small holder farmers) for sustainability and develop/strengthen service providers.
- ◆ Linkages with suppliers and the market i.e. development of forward linkages to fresh fruit processors, development of support systems to support the fresh fruit juice processors.

Some of the production technologies developed included the fresh fruit pulper that was developed by students of JKUAT so as to reduce the use of blenders since they break all the time.

JKUAT in collaboration with KVM came up with a fresh fruit trolley which is used for marketing and product distribution. KVM was also involved because it can replicate the trolley at a low cost.

Kenya Gatsby Trust linked the fresh fruit processors with K-Rep financial credit services.

Skills were developed to sustain the fruit supply and they include:

- Raw material selection
- Raw material handling and
- Raw material storage.

Prof. Ogada (facilitator) highlighted on issues concerning the agro-processing/agro-machinery forum. These included:

Most of the companies promoting Kenya vision 2030 are wondering what was the difference between vision 2020 and vision 2030.

Vision 2020 states that the country should be industrialised by this year. At the moment Agriculture is contributing 25% to the GDP while manufacturing is contributing less than 10%. The vision 2020 will be established when manufacturing will be contributing about 25% or a percentage close to that of Agriculture.

The vision 2030: This is the period when there is going to be industrial competitiveness i.e. Kenya's industrial products will be competing globally.

-
- The major constraints hindering SMEs to go forward include:
 - Finance
 - Marketing and
 - Technology and these factors are the main reason JICA, in collaboration with Ministry of Trade and Industry, is writing a Master plan.

OPEN DISCUSSION

The floor was then opened for any questions or suggestions from the participants.

1. Mrs. Anne Kimani a consultant with Private Sector Alliance wanted to know if there is a possibility of creating venture partnership, because of issues of technology and finance, between Kenya and Japan.

She also suggested that the ASAL issue is big because it includes the youth.

2. Mr. Peter Kigoddee from technoserve commented on the value chain presented by MAPSKID and Kenya Gatsby Trust. He wanted MAPSKID to explain to participants if there were links between MAPSKID that could help the value chain to go up. And is MAPSKID trying to find out from farmers what technology they need.

He also wanted to know from KGT, since they found the need to develop people to processing mangoes, what are the problems they faced.

He also commented on the bio-fuels and wanted to know what can be done about all the constraints mentioned in the presentation.

3. Mr. Mohammed suggested that Kenyans can do agro-processing in rural areas, but the problems that we face are just caused by ourselves. He urged the government to address issues of importation and should also encourage the Private Sector as well as take the basis and address fundamentals.
4. According to a representative from KEPHIS, access to power in most of the parts in rural areas is not easy and he wanted to know what the government was doing in those areas to ensure the availability of power.

RESPONSE TO THE ABOVE QUESTIONS

Mr. Shibata

- ✓ Ministry of Trade and Industry is taking an initiative in Bio-diesel.
- ✓ It is difficult for farmers to establish production and marketing
- ✓ Jatropha can be used for lantern fuel.

Mr. Nagamine

- ✓ For the joint venture, a close contact from JETRO, JICA, JBIC contacted and are trying to find if there is a possibility to establish a link between Kenya and Japan.

- ✓ MAPSKID is keen on the issue of infrastructure i.e. the electricity sector and they are working on how they can exchange views with different ministries.

Mrs. Rotich

PSDS goals are:

- ✓ To make the business environment conducive for investment by finding ways on how to bring the cost of energy down through the government and KAM.
- ✓ To make registration of business in a one stop shop for both local and international investors
- ✓ Devising other ways for the government to earn revenue instead of licensing so as to ease the process of registration by removing some unnecessary licences that are not needed.

Prof. Ogada

He suggested that local innovators and university students be protected. The government should also address issues of quality since it is very important.

Cont. Discussion

5. Mr. Ngeru from Femoworks suggested that we stop talking and get to the practical. In the case of machines, we should ask ourselves what are our capabilities. We should focus and concentrate on Kenya and more precisely the small manufacturers since they are the people on the ground.
6. A representative of the Jua Kali Association suggested that all these different policies by different Ministries should be read in Parliament because that is the only place that will influence the implementation of these policies. He also had a question to Gatsby on what it does with the wastes from the mangoes in Malindi fresh fruit juice processing project and if these wastes are environmental friendly

He also wanted to know what plans, if any, that JICA has to help Kenya with electricity.

7. Ms. Ayako Ishiwata from MAPSKID clarified to the participants that the beauty of Japan manufacturing industry is not in the machinery that Japan has. The thing in Japan that makes the manufacturing industry perform very well is the fact that people in Japan always boast in performing small processes and not in the whole assembly. Therefore for Kenya to do well in the Industrial sector, it must engage itself in talking so as to exchange ideas and that is simply the spirit of Japanese Industrialisation.
8. Ms. Lorna from Vanilla Jatropha Development Foundation differed with the statement made earlier by Mr. Ngeru from Femo Works where he said that people are tired of all this talking and no action being implemented. According to Ms. Lorna, we have to talk, because all these forums talk of different things. She also urged the participants that we being a country in reform, we should create wealth for ourselves and we should look at every option since we can not create a policy in what does not exist and we should ask the government for incentives.

She also wanted to know from GATSBY, the bottlenecks in the policies and problems and how they

are being handled

9. Mrs. Anne Kimani complemented the system of KGT and wanted to know what infrastructure they have for example when it comes to going cluster wise.

She also asked the participants to address the issues of raw materials e.g. the constraints.

10. A representative from the Ministry of Agriculture commented on the use of Bio-pesticides and how they reduce the cost of production. She complemented that these are very safe therefore urged the government to explore this.

She informed us that in exploring this, the government will assist farmers to save on the cost of production. The government can approach the Jua Kalis for sprays needed when using these Bio-pesticides.

11. Mr. Kosgei Dean of Agriculture Egerton University commented on the fact that most of the youngsters going to Universities are not interested in Agriculture. His suggestion was for the government to find ways of motivating these students. Be it by changing the name of the course or any other method, they should do something fast before Agriculture dies in this country.

RESPONSES FROM MRS. JANE MUNG'OMA FROM KGT

Here she had to comment on the questions given above and in other cases give her own suggestions and point out points of weakness that she has identified. This included:

- ✓ Our capacity to industrialise is going to waste because of poor implementation of policies
- ✓ Environmental waste management is a major concern to Gatsby and it has come up with organised solutions to cater for wastes. Composite waste can be used in farms.
- ✓ Clustering is a good way to industrialise starting from the rural areas.
- ✓ There were bottlenecks when conducting the Malindi project and this include problems in training through the extension service providers. There was jealousy and most of these service providers could not accept the fact that some stranger from outside could come to their territory and start training their people. Because of this reason, KGT decided to use private extension service providers to do the training.
- ✓ Integrated investment mode is working but it is difficult to convince someone to invest in a model that you are trying for the first time.
- ✓ ICPE trains farmers on preservation methods of pesticides.
- ✓ Some of the problems faced in Malindi were in the transportation of mangoes, land ownership issues.

BIO-DIESEL

1. Ms. Lorna from VJDF commented on issues involving Jatropa and this included:

- ✓ Jatropa projects are practised in countries like India, Malaysia, Egypt, Malawi etc. Her

suggestion was that Kenya should borrow information from these countries.

- ✓ Jatropha naturally exists on its own and does not need to be imported. Seeds have been dropped in twelve districts and so far they have all been successful. Its fruits take 8 months to produce and need only one rainy season. 75% of Kenya is viable for Jatropha.
 - ✓ Jatropha can be used for cooking.
2. Mr. Nyamai from VJDF wanted to know how do we explore and unlock constraints in Jatropha
 3. According to Mr. Shibata, the international society should concentrate on the development of Jatropha as a way of attracting the private sector for assistance, the government should advertise it.

<Tear-down Study Forum on Electrical Equipments>

The forum started with an opening speech from the *Director of Industries, Mrs. Rotich*. She highlighted a couple of issues one of them being that MAPSKID was doing a good job assisting to write a master plan on industrial development that would lead to our realisation of Kenya Vision 2030.

Prof. Tom Ogada from KIRDI followed by reading the Permanent Secretary's speech.

TEAR-DOWN PRESENTATION

Mr. Horiguchi from MAPSKID made his presentation on the tear down process he explained the purpose and the method of tear-down.

The tear-down process followed and it was witnessed by all participants of the forum. The machines which were teared down included:

- ✧ Ink Jet Printer
- ✧ Vacuum cleaner
- ✧ Computer's C.P.U.
- ✧ Laser Printer

After witnessing the tear down process, representatives from different manufacturing companies e.g. plastic companies, had to identify which parts they can manufacture cheaply and easily, this being the main purpose of tear down.

OPEN DISCUSSION

INK JET PRINTER TEAR-DOWN

This session was facilitated by Dr. Kevit Desai, the governor of the Kenya Private Sector Alliance (KEPSA). His proposal to the participants was for them to discuss Kenya's capability for manufacturing a printer in line with vision 2030, as seen from the tear-down of an inkjet printer. He also informed us that he had made some important observations that would help Kenya find ways of finding capability of its Industrial structure. To achieve this, we should ask ourselves the following

questions:

- I. How do we play a global capability
- II. How do we combine the private sector, government and the academia
- III. Does Intellectual property Rights have a say in finding this capability
- IV. What is required from the private sector, government, e.t.c. so as to create moulds.
- V. What incentives are needed to uplift capability in the country

The floor was open for questions from the participants.

1. *Anne Kimani, a consultant with the Private Sector Initiatives*, wanted to know how tear-down relates to sub- contracting. Is there a possibility assuming that we outsource and have to produce millions of printers, is there a possibility of sub-contracting the Jua Kali?
2. *Amit Shah from Kenpoly* explained that the process of tear-down is possible and that Kenypoly can mould some of the plastics used in casing of the printers, but the problem with production is in sourcing raw materials because this is not a convenient type of moulding.

Besides problems in production, he pointed out some major factors that would influence production. They included:

- Quality market
- Dedicated manpower
- Quality machinery

On the issue of sub-contracting, he suggested that the Jua Kali need training to cope with this.

3. *Mr. Kenneth from KIRDI* informed us that they are working with graduates from Universities to create capabilities, but the only problem being that they need to create partnerships between the Academia, KIRDI and the Government (Industry).

He also informed us that according to KIRDI's point of view, the Plastics Industry has not been strong over the years

4. *Dr. Markoyoto from KIRDI* suggested that researchers should work together with industry so as to fulfil our vision 2030. His observation is that there is a lack of collaboration between Industry and KIRDI.
5. According to *Mr. Michael Katary (nuclear science)*, Universities are unable to provide research and technical managers to the industry though it is nothing complex. What is needed is the drive to harness capabilities e.g. Jua Kali's are dying because they are not harnessed.

He also quoted that the 73% of the tear-down process can be achieved, but we need to focus on polytechnics and ask ourselves, "have the polytechnics been successful academic institutions?"

6. According to *Mr. Raju Shah*, the education level we have in Kenya makes it difficult for us to achieve

the 73% of the tear-down process. To achieve this, stakeholders should focus on the requirements of each sector.

He however complimented the tear-down process, but was wondering how do we implement this process and where do we go to address this question.

7. *Mr. Leonard Kimani from National Economy and Social Council* pointed out that the long term mission of the country is to deal with informality. The informal sector is the greatest job creator in the country therefore, we should address the issue of informality.

8. *Mr. Ndemo, Permanent Secretary Ministry of Information and Communication.*

- The government is looking for private sector which people can invest in.
- Madaraka one (the PC project) was established so as to satisfy the markets no one was catering to i.e. schools. PC's made by this project cost half that of imported and used PCs. The next major step that the project wants is to approach universities for assistance e.g. ask JKUAT to give power supply, UoN to provide the motherboard, e.t.c.
- It is possible to change the economy but we first need to address the issues of infrastructure.
- He also suggested that people should change their attitude on jobs because they are none. Instead of waiting to be employed we must create jobs for ourselves.

9. Dr. Desai had a question on what is required from our environment to enable the use of computers.10. Mr Amit Shah suggested that the stakeholders should look for skilled people and avail these skilled people. Furthermore, we should emphasis on field training in our school curriculum.

10. *Mr. Paul Singh from Plaskit Kenya* commented on the issue of moulds. He informed us that his company manufactures moulds and then sends them to Kenpoly to use in their plastics manufacturing process, but to make the tear-down process successful, they require more advanced skills to do so.

He also identified electricity as a problem in the moulding processing and suggested that they need stable power so as to avoid spoiling moulds in the process of production. For that reason they are using generators and do not rely on KPLC due to the frequent black outs.

11. *Mr. Louis from Power Technics* informed us that they can manufacture the metals and that they have skilled labour and machinery is not an issue. The only problem is raw materials.

He also commented on assemblage quoting that it is not possible for them to do that because of lack of equipment.

He also admitted that the 73% on the tear-down process is possible but we need the government to regulate itself and do investment in industries. The government should return the research fundings so as to encourage innovation.

12. *Mrs. Rotich* informed us that other projects would collide with the private sector and through the PSDS (which was launched), the government can create a stable and favourable environment for

industries to participate in. Her suggestion was that the private sector should participate in what they know best.

She also made it clear that the government wants to walk with the private sector.

On the issue of collaboration between universities and industry, she informed us that they have collaborated with the Ministry of Education so that the skills required in industry could be taught from the primary school level so that by the time students are in universities, they are innovative.

13. *Mr. Desai* informed us that issues on capability can be addressed through KEPSA.

VACCUUM CLEANER TEARDOWN PROCESS

In this session, the facilitator, Dr. Desai from KEPSA specified that participants discuss issues concerning the rubber side.

1. *Mr. Daniel from Sameer Africa* informed us that the teardown process is important when it comes to comparison and that they can assist in coming up with the compounds needed.

The only problem comes in the form of the lack of links between their researchers and the universities. Therefore, there should be links established between the two i.e. the rubber industry and chemistry students and this may lead to improved products due to increased chances of innovation.

2. According to *Mr. Peter Wainaina from EPZA*, their main role is investor facilitation and they usually face exports directly or indirectly.

Some of the common issues raised by most of their members are issues concerning price and quality. He however informed us that there is potential for Kenyans to set up under the EPZ and supply the EPZ since there is a linkage between the EPZ and the domestic investors.

3. A representative *from the University of Nairobi* complemented the idea of linking the universities with Sameer and he suggested that only the departments concerned should be customized.

He also commented on the issue of manpower in Kenya by stating that manpower is not a problem but they are not being appreciated and not given training. His suggestion was that the organisations should invest in their manpower so as to motivate them.

4. *Mr. Ikua from JKUAT* suggested that university students be given attachment in organisations operating under industry so as to provide a good exposure for them so they can learn to work under such an environment.

He quoted that the process of moulding is not complex but only the procedure should be learnt and adopted. He informed us that their University had come up with a moulding machine.

He also touched on the issue of linkage between universities and industry according to him, its not there.

5. *Mr. Evans Bonge from KUESTA* informed us that they can provide mechanical engineering

servicing for printers, repairs, manufacture new and can also manufacture gears for the printers. The only problem is how to get the materials because of competitors and he suggested that the Ministry of Trade and Industry should come up with a solution for this problem.

Dr. Desai wanted to know how KUESTA retains its staff and if they gain assistance from the government and also how KAM assists.

According to *Mr. Evans*, they have not gained any assistance from either the government or KAM. The tricks they use to retain their employees are just by paying them well. He also suggested that they needed assistance from the latter.

6. According to *Mr. Pasuruko from Numeric Machining Complex*, the cost of production is high and acquiring some of these parts is expensive.

He also suggested that the Ministry consider the following:

Retraining: Get people from institutions and train them, but the cost of training is high and after training, employees tend to move out/migrate. Therefore organisations should device ways of maintaining trained employees e.g. through signing of contracts.

7. According to *Mr. Peter Mikwi from Sanpack Ltd*, the high costs are based on raw materials. Teardown is a good idea and can open up in Kenya, but he recommends we be given an example so we could follow without any doubts.
8. A question was directed to *Mr. Horiguchi* on what he thinks should be done on the comments on capability. His response was:

The first impression when you walk into most of these factories was that the machines are old and to be capable of the teardown process, basic knowledge is not important but only the purchase of new machinery is of major importance.









He also suggested that Kenya needs production technology i.e. quality control.

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61 Iqbal Singh	Plaskit Kenya	Electronic Engineer	santowels@afrioonline.co.ke	0722/0736 522743 off 020 551451-60 8234443
62 Rogers M Ngoyia	Kiusta Industrial Technical Service Limited	Maintenance Supervisor	none	531344/5 0722 786948
63 Renjit Mon	Packaging Industries Limited	Director		559533/0722222407
64 Peter Migri	Sampac Ltd	Process Development Engineer	jimnah_karima@powertechnics.com	6930421
65 John Mureithi	Plastic & Rubber	Chief Engineer	engineering@kenapoly.com	530511 / 650511
66 Evans Boge	Kiusta Industrial Technical Service Limited	Factory Manager	selwyn-lewis@powertechnics.com	823600
67 Imna Karima	Power Techniques			
68 Amit Shah	Kenpoly Manufacturers Limited			
69 Selwyn Lewis	Power Technics Limited			

QUESTIONNAIRE RESULTS		RESULTS
AGRO-	FORUM	
Questions		
1. Which sector/ Institution do you work for?		Percentage(%)
1. Agro-Processing/ Farming		23%
2. Research Institution / Academics		7%
3. NGO		3%
4. Ministry of Trade And Industry		33%
5. Government / Government agency other than the Ministry of Trade		13%
6. Others		20%
2. What is your overall impression on the forum?		
1. Not interesting		
2. 		
3. Fair		7%
4. 		40%
5. Very Interesting		47%
6. Not Checked		3%
3. Were all the Presentations clear to understand?		
<i>Presentation One</i>		
1. Not interesting		17%
2. 		
3. Fair		33%
4. 		
5. Very Interesting		50%
<i>Presentation Two</i>		
1. Unclear		16%
2. 		
3. Fair		33%
4. 		
5. Fully Understand		50%
<i>Presentation Three</i>		
1. Unclear		17%
2. 		
3. Fair		33%
4. 		
5. Fully Understand		50%

Question 4. What are the issues that you feel more discussion is necessary?**Who should be included in the discussion?**

- *processing of animal products and their safety
- *more small manufacturers and marketers
- *cheap and easy to learn technology for rural resource
- *jua kali artisans, scientists and researchers
- *Growing farm produce and value addition
- *Local stake holders, government, private manufacturers
- *poor supply to rural settings
- *Technology transfer
- *capacity building
- *infrastructure, licensing procedures- KEBS should attend future discussions
- *perishable agricultural processing- horticulture
- *packaging needs to be discussed more
- *fruit processing
- *local production of farm inputs
- *invite stake holders from outside Nairobi- districts
- *bio-diesel technologies
- *financial policies
- *human resource development

Question 5. Any suggestions for the next sector forum?

- *have practical examples next time
 - *longer sessions- up to 2days
 - *general exhibitions on available technology
 - *more sectoral involvement required
 - *include ministers, local farmers and farmers groups.
 - *forum should go into the district level for better participation
 - *formation of small experimental groups all over the country
 - *more on bio fuels
 - *collaboration from other stake holders
 - *strategies and work plan for the implementation of work plan for agro-processing development
 - *should be tailored to fit various levels; policy makers, ministry staff, users & SMEs consultants etc
 - *make meeting more interactive for suggestions to be made
 - *integrate the youth in innovative technical ventures
-

QUESTIONNAIRE RESULTS	RESULTS
TEAR-DOWN FORUM	
Questions	
1. Which sector/ Institution do you work for	Percentage(%)
1. Ministry	73%
2. Research Institution / Academics	11%
3. Public institution for enterprise development	5%
4. Private Manufactures	10%
5. Private Services	2%
6. Others	0%
2. What is your overall impression on the forum?	
1. Not interesting	0%
2.	
3. Fair	44%
4.	
5. Very Interesting	56%
3. Do you think that tear-down methodology is useful for development of the manufacturing sector in Kenya ?	
1. Not interesting	7%
2.	
3. Fair	15%
4.	
5. Very interesting	66%
4. Do you wish that type of tear-down forum should be held in Kenya?	
1. Not wish to be held	0%
2.	
3. Fair	0%
4.	
5. Very much wish to be held	100%

5. Any suggestions for the next tear-down study forum?

- *detailed cost of tear-down pieces
- *involve jua kali products for tear-down
- *Tear-down should involve commonly used products in Kenya
- *SMEs should be involved more in such forums
- *more private organizations need to be invited
- *diversify private sector representation
- *Involve representation from other regions as well
- *Focus should be on cost of producing parts
- *Circulate the papers earlier to allow institutions go thro' them and make presentations
- *Involve working equipment in tear-down
- *Tear-down should be done systematically by experts and shown on slides

6. Any suggestions for the development of the manufacturing sector?

- *Govt. Should create conducive environment
 - *need for a govnt. Policy on energy
 - *create linkages between jua kali and formal manufacturing sectors
 - *subcontracting important in developing the manufacturing sector
 - *sector needs assistance to become more competitive internationally.
 - *Next forum should be held in a production plant
 - *institutionalize collaboration between govnt., private sector and academia.
 - *Tear-down should be done on many other machines
 - *involve all people not the elites only
 - *involve young technical graduates instead of old guards
 - *Capital equipment should be emphasized
 - *Networking within the sector should be encouraged for ease in flow of information
 - *Govt. Must support local initiatives
 - *Create Steering committee owned by stake holders
 - *Locally produced goods should be protected from imports
-

The Third Forum of MAPSKID held in Nairobi and Mombasa, February 2007

<AGRO-Processing and Agro-Machinery Forum>

1.0. STARTING AND OPENING REMARKS

The half day workshop started with a welcome note to the guests from the Ministry of Trade and Industry, JICA and participants by the Master of Ceremony Mr. David Opiyo the General Manager Industrial Estate. Participants introduced themselves in plenary indicating their names and the organizations they come from. A full list of participants is attached as an appendix to this report.

1.1. Welcome Remarks by JICA Team Leader

Mr. Yoshio Nagamine the Team Leader, JICA Study Team started by thanking and welcoming the participants to the workshop. He stated that the workshop was one among a series of workshops being organized by JICA Study Team as part of the Master Plan Study for Kenyan Industrial Development (MAPSKID) programme which was an agreement between the Japanese and the Kenyan Government.

He said, the MAPSKID programme started in February, 2006 and was scheduled to complete in October, 2007. As part of the programme several forums have been held since the programme started and the last forum was held in June, 2007 in Mombasa.

He indicated that the MAPSKID programme had identified three areas of intervention which were Agro-processing, Agro-machinery and Electronic/ICT. The half day workshop targeted the Agro-processing/Agro-machinery sector and presentations were to be made by Sakae Tamura, Toshihide Shibata of JICA Study Team and Lorna Omuodo of Jatropha Development Foundation.

He welcomed the participants to an interesting time and hoped that the discussions will be fruitful. He also welcomed participants to give their comments and contributions in relations to the MAPSKID programme even after the forum to be included in the MAPSKID Study.

1.2 Opening Speech by Director of Industry

The opening speech was made by Ms. M. C. Rotich, Director Industries, in her opening speech she first welcomed the guests from JICA, Members of the MAPSKID team and participants.

She started by saying that, the ministry has valued the MAPSKID process which is collaboration between the Ministry of Trade and Industry and JICA and that the process will be very instrumental to Kenya towards achieving the industrialization status targeted for 2020 and also feed into contributing towards the vision 2030 by the government of Kenya. She added to say that when the study is implemented it will have a great impact in the economy of the country.

She indicated that MAPSKID will be a driver towards sustainable SME's. She added that the Private Sector Development Strategy and Industrial and Investment Policy was in the last stages and will be launched in the second half of this year (2007) and already the Ministry was looking for development partners to partner with in the implementation process. The main objectives of the policy are:

- Creating an enabling environment.
-

-
- Institutional arrangement for private and public sector.
 - Creating and looking for markets.
 - Improving the productivity by reducing the overheads.
 - Development of SME's

She indicated that at the end of the MAPSKID study an implementation plan will be rolled out at the intervals of 5 years starting 2008 – 2013 (first phase) and after that for another 5 years.

She hailed the support the government of Japan has provided in the study through JICA. She encouraged that participants to look at what had been proposed by the study team in the three areas of intervention (agro-processing/agro-machinery and electronic/ICT) as a stepping stone to a more advanced process in the future.

She indicated that MAPSKID will come up with a vision as a road map to development that will contribute into achieving the 2020 vision of industrialization in the country. The programme will look forward to working with other partners to drive the process to success.

She invited participants to give their thoughts and actions that they felt required to be captured into the study and with that she declared the FORUM OFFICIALLY OPENED.

2.0. PRESENTATIONS

2.1. Presentation One: Promoting Agro-Processing in Kenya

This presentation was made by Mr. Toshihide Shibata of the JICA Study Team.

He stated by stating that he was obliged of the co-operating they had received from the higher institutions of higher learning such as Moi, Egerton and JKUAT Universities and support from other organizations such as Jatropha Development Foundation.

2.1.1. Importance of Kenya Agro Industry

The presenter gave an overview of the importance of the Agro Industry in Kenya in comparison with other African Countries between 1990 – 2001. Some of the benefits have been as follows:

- Employment in agro-processing 419 thousand or 13% of total formal and informal employment
- 50~60% of total export value is earned by the agro-processing sub-sector.
- 30% of GDP is derived from agro-processing

The facilitator presented the above graph to show Kenya's competitors in Agro-export indicating that it was important to know the competitors strategy. He indicated that Malawi, Ethiopia and Madagascar are some of the major exporters in agricultural products.

The graph above indicated the trends of coffee export in Africa. The graph shows a decline not only in Kenya but also other African competitors of coffee export due to booming aggressive exports by Vietnam and Latin American countries.

2.1.2 Kenya Weak Points

Areas identified as areas of weakness were as follows:

1. High Energy Cost (electricity), Cost and feeding stability.

Power failures are too often in Kenya affecting normal manufacturing activities. Many firms have to install stand-by generators and the costs of installment and fuel are added to ex-factory prices of manufactured goods. This undermines Kenyan competitiveness towards world market

2. Labour cost

Compared to other African Countries like Ethiopia, Uganda and South Africa, Kenyan labour costs are very high.

3. Shortage of processing materials. This has been attributed to by the following factors:

- Absolute scale of production is too narrow to procure materials to be processed in factories.
- Distribution of producing areas is too sparse to collect by collectors (scale of smallholder).
- Purchase prices are so cheap that producers become reluctant to crop industrial crops.
- Production inputs including seeds & irrigation are so dear that farmers hesitate to employ them.
- New / substitute materials are yet tapped/exploited.

Examples were given on shortage of processing materials sighting the hide and skin industry where most of the raw materials are exported and little is left for home use which has resulted to closure of some of the Hide and skin factories.

Coffee production has also been declining due to the poor prices which has resulted to farmers cutting down their coffee trees for alternative farming crops. Pyrethrum production is also declining due to discouraging prices.

4. Lower degree of value addition

Value addition in total Kenyan manufacturing: 30%, agro-processing average 24%, grain ~meat processing 21% Sugar and bakery also 21%, beverages 41% and dairy 26%. Compared to other African countries as shown in the graph below, it indicates that value addition in Kenya is low.

5. High Dependence on Traditional Semi-Products Exports

An example was given in the Tea export whereby most of the tea exported is in form of a semi-product which is later re-packed and fetches a higher price.

Other factors affecting the agro processing sector were said to be:

- Poor erosion of agro-commodities – this has been declining due to poor marketing trends.
 - The Kenya's Dairy Industry has the potential yet its affected by poor road conditions and cost of transport resulting to importation of milk by products like butter yet the country has the potential to produce adequate supply.
-

2.1.3 Value Chain

The value chain below was presented to show that Agro Industry unlike the other sectors require low energy.

2.1.4 Cotton Industry

The presenter indicated that the Ministry of Agriculture is campaigning to revive the cotton sector yet it may not be as viable in comparison with other crops due to the competition from the established cotton growers around the world. The following points were highlighted regarding the Rehabilitation of cotton and if it was viable.

- Cotton is a water-consuming crop susceptible to drought, preferably cropped under irrigation.
- It requires much inputs, chemicals, fertilizers, seed but Kenyan yield level is far below global mean.
- Some ginneries are now closed and growers have to deliver harvested crops to remote ginneries.
- Chain industries are also closed, while glut supply of used garments has been allowed.
- Better to convert it into other fibre production.

The main problem of the cotton industry was said to be low delivery of raw cotton because of high pesticide and fertilizer costs, low yields and remoteness from ginneries. Domestic demand of raw cotton has become weak due to duty free second hand garments flowing freely into Kenya.

In comparison with other countries around the world as per the graph shown below it indicated that Kenya is below the global mean in terms of trade of cotton.

2.1.5 Sugar Industry

The presenter indicated that the sugar industry in Kenya was being restored and it was a source of employment in the rural areas. It was indicated that the sugar industry has a great potential in Kenya if utilized properly due to the rising cost of the sugar by-products such as molasses and ethanol and if these are capitalized on, then they would boost greatly the sugar industry in Kenya. Currently it is only Migwani Sugar mill in Nandi that has installed ethanol production lines.

The graph below shows that the production cost of molasses is low which then translates to low cost production of ethanol as well which has a higher price in the market.

2.1.6 Coffee Value Chain

The presenter gave scenarios of coffee production in Kenya which indicated a high production cost due to high cost of inputs. He indicated that Kenya will need to adopt a different measure of trade to step up on coffee returns. Uganda coffee production is gaining since they have managed to access markets in the developed countries.

The presenter also indicated that the tea industry needs to be re-looked at if Kenya is to remain a

world exporter. Some observations given in this sector are:

- Threat from the global beverage diversification.
- Buoyant Kenya Tea Market in Asia e.g. Pakistan.
- Escalating climatic change over African continent.
- Need to regenerate trees for better quality.
- Low domestic consumption of tea/coffee.
- Slow pace of processing velocity in tea factories.
- Issue of labor cost – reduction/mechanization.
- Diversification of products as pharmaceuticals.

2.1.7 Future of Agro-Industry

The presenter gave two scenarios as shown below:

Scenario 1:

- Possible future escalation of desertification.
- Possible future aggravation of agro Terms of Trade (TOT) in comparison with other industrial sectors.
- How will Kenya cope with these challenges?
 - Measures for up-stream side (material proc.) Diversify materials & exploit new ones.
 - Measures for processing side diversify the exports & domestically oriented commodities.
 - Measures for down-stream side (marketing) Improve quality to meet client's savor/demand through freer domestic competition, excluding mono- /oligopoly.

Scenario 2: Hints to Radical Innovation

- Kenya has relied on industrial crops with high susceptibility of droughts, sugarcane, cotton, tea and coffee etc. (exception; sisal) so processing materials resistant to drought will have to be introduced / substituted with traditionally employed ones.
- Some processing sub-sectors with low possibility of recovery should be resolutely renovated into more promising ones like Kenya's successful horticulture exports. "Do not cling forever to sinking Titanic!"

Some of the crops that were said could add value to the Kenya Agro-processing market were:

1. Sugar cane – The by products of sugar cane especially Bio-fuel which is obtained from Molasses is currently on high demand and the prices are going up.
2. Cassava – it can be used for food and ethanol production. Cassava is a very adaptable crop and can be grown in most places in Kenya.

3. Jatropha Tree – this does very well in dry places.

Currently in Kenya the ASAL Area is estimated to be 48 million hectares of which 50% can be planted with Jatropha, another 25% with cassava. 28.8 million Metric tones (MT) of oil-seed and 48 million MT of tubers can annually be harvested. From these raw materials, 8 million KL of bio-diesel and 12 million KL of bio-ethanol can be manufactures. This will ease Kenya's foreign currency burden and giver rural population income generation.

The presenter indicated that Jatropha oil processing does not require costly Plants for processing but relatively simple apparatus can be used.

2.1.8 Comments and Questions

Questions and comments arising from the session of agro-processing were as follows:

1. Comment: Malaysia/Thailand is slightly behind on the production of ethanol but currently they are producing starch pellets from the cassava and exporting them to Europe for animal feeds. Japan is also importing the same from these countries.
2. What about power generation from sugar waste? The presenter indicated that the waste from the sugar (dust) could be used for energy production but however a feasibility study needs to be undertaken first to determine the viability. He emphasized that the sugar by-products were useful for rehabilitating the sugar industry in Kenya.
3. Is it not likely that the use of cassava and sugar for energy production will have an effect on the cost of food in terms of lack of adequate supply of human consumption (food) leading to high costs? The presenter noted that this would be the scenario indicating that in Europe the use of corn and maize for ethanol production had resulted to increase in the cost of milk for lack of adequate animal feed. However he indicated that FAO has a policy that helps protect the interest of the poor.

2.2 Presentation Two: Agro Machinery

The presentation on promoting agro-engineering in Kenya was made by Sakae Tamura of the JICA study team.

The presenter started by indicating that agro machinery contribution to the GDP has been on the decline, the decline has been as a result of contrary business environment. The unfavorable environment has been caused by:

- Difficulty in getting reasonable price of raw materials. Currently Kenya has no blast furnace and cannot produce hard steel.
 - High electricity cost
 - High transportation cost.
 - High labor cost
 - Security.
-

These factors have resulted into many manufacturing factories closing down or shift from manufacturing to importation.

In reference to the statistics obtained from the Kenya Bureau of Statistics indicate a speedy growth of GDP however the manufacturing sector has been stagnant or declining.

An example was given as to why some manufacturers have opted to import instead of manufacture.

The cost of manufacturing some hand tools was given as shown below:

- Local-made Panga : KSh 300-400/piece : China KSh 60-70/piece
- South African Sickle : KSh 400/piece : China KSh 50/piece

This has resulted to importing which is much cheaper than producing locally. It was also indicated that business was now shifting to Uganda, Rwanda and Sudan where there was a more supporting environment. It was said that the Marssey Ferguson (MF) wants to start their own factory in Sudan and this may affect the Kenya Manufacturers. MF is also relocating to Rwanda.

The facilitator said as a way forward the Line Ministry needs to come up with a national mechanization programme, currently there is no plan. It would also be important to carry out capacity/technical training if this sector is to move forward.

2.2.1 Sleeping Leather Factory

Most leather factories have closed down due to lack of adequate raw materials which has been caused by the exportation of the raw material to China, India and Pakistan. The question asked was whether Kenya wants to be a raw material exporter or manufacturer. Which of the two would add more value to the Kenyan Economy?

2.2.2 Trade Balance with COMESA Market

The diagram below was presented to show the Trade balance with COMESA market.

It was indicated that Kenya is gaining more from the regional market and has great potential to become dominant in the Machinery market.

2.2.3 The Monozukuri Concept

The presenter indicated that the Monozukuri concept would be helpful in creating value in the manufacturing sector in Kenya as explained below.

RETURN TO “MONOZUKURI” FOR RESTORATION OF 1990’s LEVEL

“MONOZUKURI” consisting of “MONO” which means “products” and “ZUKURI” means “Process of making or creation” is a comprehensive concept of creating value in Kenya throughout the entire business process including marketing, R & D, engineering, manufacturing and distribution and ensures an even higher level of customer satisfaction thanks to competitive advantages in quality, cost, delivery and service.

2.2.4 Utilisation of Bio-Ethanol in the World

The map below shows the utilization of Bio-Ethanol in the world.

As the demand of bio-ethanol increases Kenya can embrace Bio-ethanol and even control the market especially the Asian market. There is need to promote the Bio-diesel industry.

The line ministries (Ministry of Trade and Industry and Ministry of Agriculture) need to come up with an appropriate strategic mechanism to capitalize on the available potential.

2.3 Presentation Three: Technology Transfer for Promotion of Rural Agro-Processing Industry

This presentation was made by Ms. Lorna Omuodo the Programme Director Vanilla – Jatropha Development Foundation (VJDF).

The presenter started by giving an introduction of the status of the agricultural sector in Kenya and how bio-diesel would impact the sector. She said in Kenya, agriculture is recognized as the engine for economic growth, rural development and poverty alleviation, among other direct and indirect benefits. The sector directly contributes 26% of Gross Domestic Product (GDP) and a further 27% through linkages with manufacturing, distribution and service related sectors.

In 2005, 7.4% of our GDP and over 25% of our foreign exchange earnings was spent on the importation of petroleum products with diesel comprising 60% of the total oil imported.

Even a 2% blend with bio diesel will be significant.

The presenter said, the European Union has set a 2010 target for bio-fuels to comprise at least 5.75 per cent of its transport fuel supply providing a market opportunity for Kenya.

Estimated that at least 6 million Kenyan farm families could directly benefit from Jatropha-based value chain over the next five years and that an equal number are likely to benefit in the medium to long term if scaling up strategies are maximized.

One of the major attributes of *Jatropha curcas* was said to be the ability to establish and yield significant quantities of seed in marginal lands. This makes it contribute to sustainable biological diversity conservation leading to the stability of agro ecosystems, especially fragile ecosystems such as arid and semi-arid lands.

Why Jatropha Bio- Fuel?

Reasons given as to why the Jatropha is viable are:

- Hardy plant, grows in adverse conditions, poor soil and dry weather, needs 200 mm of rain.
- Fruits within 3 years of planting, although fruiting reported early in 18 months.
- High oil content of 30-40% compared to other plants
- Grows to a height of 10-12' makes plucking of fruit easy

What needs to be done?

- Select good quality plantation seeds or 3 month old saplings
- Plantation in Soil
- Maintenance of Plantations
- Collection of seeds
- Processing of seeds
- Expelling of oil
- Claiming Carbon Credits

She said that Bio-fuels would play a key role in achieving the goal of Sustainable Energy Security for all by 2020.

Definition of Bio fuels

Bio-fuels were defined as follows:

- The term bio fuel broadly includes all types of fuel resources derived from the biological world.
- Specifically, bio fuels are fuels derived from all plant based resources that can substitute petroleum based oil.
- Internationally bio fuels refer to bio ethanol and bio diesel.

Types of Bio fuels

- Bio ethanol- can be used as an admix to gasoline (gasohol) an admix to diesel (oxy-diesel) neat fuel.
- Bio diesel- derived from vegetable oil vegetable fatty ester is tran-esterified with methanol /ethanol for use in diesel engine can be used as an admix to diesel can be used as neat fuel in diesel engine

Bio fuels: International Scenario

Active programme on bio-fuels in several countries.

- Brazil front-runner with 22% ethanol blends in gasoline produced from molasses and sugarcane juice
 - USA uses corn as main source of ethanol
 - Thailand uses sugarcane as well as cassava for ethanol
 - Japan, Germany, Canada, Australia, Indonesia, South Africa, Sweden are the other leading countries using ethanol blends.
 - Bio-diesel is being used in USA, Austria, Finland, France, Germany, Greece, Czech Republic, Ireland, Italy, Spain, Sweden etc.
-

- Main source of bio-diesel in these countries are rapeseed, sunflower, olive oils, which are edible and are not suitable in the Indian context.

Definition of Bio diesel

Bio-diesel is fatty acid of ethyl or methyl ester made from virgin or used vegetable oils (both edible and non-edible) and animal fats through a process called transesterification.

Bio diesel production process (*Transesterification*)

a brief video clip was presented to the participants on the process of bio-diesel production.

Rationale for using Bio-diesel

- Superior fuel than high speed diesel (HSD) from the environmental point of view.
- Relevance due to the tightening automotive vehicle emission standards and court intervention.
- Reduce dependence on crude oil imports.
- Essential for providing energy security, specifically for the rural areas.
- Rehabilitating degraded lands through greening.
- Creation of employment in rural areas.

Advantages of Bio-diesel

- Potential to supplement demand of auto fuels.
- Can be blended with diesel at any level.
- Used in diesel engine without major modifications.
- Higher cetane number, low emission, higher flash point and greater lubricity.
- Renewability, non-toxicity and biodegradability make bio-diesel an alternative to petro-diesel.

Bio-Diesel Applications

Bio – diesel can be used in:

- Diesel gensets
- Irrigation pumps
- Small scale / Home industries
- Tractors
- Transportation

The map below was presented to show that areas where *Jatropha* trees could do well in Kenya.

The *Jatropha* value chain was presented as shown below showing the benefits it would have in the national economy.

The pilot model for the Kenya's Jatropha Bio Diesel as presented to the participants was shown. The pilot model is to target the main transit highway from Mombasa to Kisumu as shown.

2.4 Questions and Comments

The following questions were asked regarding the presentations made by the four presenters.

Questions	Responses
1. What is the unit cost of Bio – fuel and what is the production cost.	<ul style="list-style-type: none"> • The world is now going bio-fuel. Currently it's much cheaper than diesel and it costs about 30 – 40 Ksh per litter. However the value is likely to go higher when it gets full recognition and in the next 10 years it will be more expensive. It time for Kenya to position themselves to become suppliers. • Brazil is the biggest supplier of Ethanol and the production cost is about US\$0.002. 60 – 65% of Ethanol is imported and the international prices are increasing due to the high demand. • It will look too simplistic if we just look at the cost of 1 ltr of bio-diesel and not look at the environmental benefits derived by the use of this product. <ul style="list-style-type: none"> ▪ We need to be in the forefront looking at how our environment has been negatively impacted and embrace technology that has a positive effect in our environment. ▪ Take responsibility and articulate this issues to our policy makers.
2. Regarding studies presented on the different scenarios on agro processing appropriate technology comparative, what should be used and what technology is being employed in the country.	Step up technology – the problem has been the management and not the technology.
3. Debate ethanol vs bio-diesel has this been done in the country to determine what is appropriate? Are there surveys being done including cost of production?	No preference has been made on which way to go regarding the E & B debate but Kenya has the potential to go both ways since there is the Sorghum and Cassava that has not be exploited yet.
4. Regarding eradication of poverty? How do we expect to achieve this through Jatropha when the cost of the trees is very high (Ksh.10 -14 per tree) yet the target is in the ASAL areas where poverty is eminent? How will this be viable in terms of affordability?	In comparison of the output the cost is low. The issue to look at is the quality of the trees. Uganda is close behind Madagascar in value production and the seedlings go for an equivalent of Ksh.100 and since farmers no the profits they have taken the advantage.
5. A lot of emphasis has been on crop related issues are there other areas of consideration such as Bones, Feathers, fish etc.	Fish is important as a food resource. Kenya fishery industry has not been capitalized fully yet they have the resources. The pelagic fish which has a high market in Asia and Europe is flowing from Madagascar to the

	Kenyan seas and the Kenyan fisherman should capitalize on the same.
6. Appreciate the role of agriculture and the fact that Kenya has a comparative advantage and have to revitalize the sector. We need to look at the inputs of farming. In agro-machinery we rely on imports yet we can develop home-grown technology. What measures can be taken to motivate the local manufacturers?	Change of attitude is important. Adopt the concept eat Kenya build Kenya. Change is expensive at the start but cheaper in the long run.
7. Jatropha is targeted for ASAL region, is there market in Kenya and what is the selling price per Kg?	Jatropha prices are determined by the market. The market in Kenya has not established as such but it growing gradually. The indicative price is Ksh.20 per Kg. At the moment ASAL is the best bet area for high production.
8. Focus has been on Ethanol and Bio-diesel, yet there is a lot of wastage on the agricultural sector, why are we not considering bio – gas and what is the comparative advantage between ethanol and bio-gas?	Bio-gas is also an initiative that Kenya can capitalize on thus the need to step up the initiative to a higher level.
9. How are you dealing with the poison aspect of Jatropha	Jatropha is not for food.
10. Institutional linkages – what is being done to involve the universities in this process?	<ul style="list-style-type: none"> • Institutional linkages are important and currently KAPP is working with five partners and there is a need for the research institutions to position themselves. • KAPP is dealing with the matter of industrialization of crops and resources. KIRDI and KARI have a joint programme on how to apply the crop character to the optimum form/mechanism of their mechanization.

3.0. CLOSING REMARKS

The workshop was officially closed by the Deputy Director of Industry Engineer Kimuri. In his closing remarks he stated that the workshop was fruitful and important to Kenya as they look forward to implement MAPSKID.

He said the Ministry of Industry is keen on the programme and is open to comments and inputs beyond the workshop. He stated that agro-processing and agro-machinery will be useful to drive Kenya towards industrialization and strong decisions will be necessary for progressive development.

He indicated that the cassava can be grown anywhere in the country and would serve as a source of food and for Ethanol production. Thailand has adopted cassava production for Ethanol production and so Kenya can adopt the same and even set aside a national day for planting cassava.

He thanked the Japanese Government, the Consultants and the participants for cohesiveness and encouraged the participants to give more information through the Ministry of Industry located on the

22nd floor of Teleposta towers.

4.0. WORKSHOP EVALUATION

Participants evaluated the workshop as per the evaluation forms given to them. The evaluation is based on 23 participants. Three evaluation questions were rated on a 1 – 5 basis, 1 being the lowest rating, 3 fair and 5 the highest rating. 2 and 4 stood for between low and high.

1. The participants were drawn from different Sectors as follows; 7 were drawn from the Ministry of Trade and Industry, 6 from research institutions/academics, 6 from the Government/Governmental agency other than the Ministry of Trade and Industry, 2 from Agro-Processing/Farming and 2 from others category.
 2. The overall impression of the forum was rated as follows; 5 participants indicated that the forum was very interesting (mark 5), 14 said the forum was good (mark 4), 3 said it was fair (mark 3) and 1 said it was not interesting (mark 1).
 3. Regarding presentation 1 - 5 participants felt that the presentation was fully understood (mark 5) 10 felt it was understood (mark 4) and 9 said it was fairly understood (mark 3). The presentation 2 – 6 said it was fully understood (mark 5), 9 it was understood (mark 5), 7 it was fairly understood (mark 3) and 2 said it was not well understood (mark 2).
 4. Suggestion given regarding areas they felt required more discussions and who should be included were as follows:
 - Comparative studies on appropriate technologies.
 - Interactive and incisive discussions on the debate on cassava vs bio-diesel.
 - Factor eradication of poverty as a major issues being addressed “no industrialization in poverty”.
 - Come up with what can be implemented from the many discussions immediately to save our agro-processing industries.
 - Involve Universities.
 - Bio-diesel is it already operational? Where is the market? How lucrative is Jatropha to the farmer.
 - More critical assessment of the value chain.
 - Increase private sector representation.
 - More discussions required on the opportunity that Kenya needs to grab in order for it to be industrialized by 2020 as earlier suggested.
 - Invite actual investors in bio-diesel market for oil seeds and the legal aspects of blending conventional fuel with bio-fuels.
 - Technical assistance in the development of bio-fuel plants (cassava & Jatropha) may be needed
-

and can this be investigated further.

- Methods and steps needed to take the value additions to Agro-processing and manufacturing machines.
 - Involve middle level management and technical staff in the forums.
 - Wider discussions regarding generation of bio-gas from agriculture products waste which is very high and compare with bio-diesel and ethanol.
 - Capacity building right from primary schools on role technology. The forums should also include high school, polytechnics and university students.
 - How long will it take Kenya to develop and use the bio-diesel concept/products?
 - Regarding Jatropha, what is the environmental impact (effects) on weather, other land users and is it a perennial crop.
 - Challenges facing the growth and development of the Agricultural sector as provider of raw materials for Agro-processing considering that the sector has really gone down. Need to include Ministry of Agriculture and bring out specific issues that need attention.
 - Discuss the socio-economic impact of some of the technology.
 - Institutional linkages especially in product research and development.
 - Animal fat (product) specialist to be brought on board for bio-fuel from livestock industry.
 - Agro processing of all agricultural products both animal and plants.
 - What other species can be used other than Jatropha.
 - How to revive the sectors that have downward trends like leather and sugar industries.
 - How do we deal with second hand clothes that have killed the cotton industry in Kenya?
 - Include cost implications e.g. unit cost of producing bio-diesel vs conventional fuels.
 - Commercial road maps – research to wider commercial approaches.
 - Cost for various elements required for industrialization.
 - Is there a sector/section in Kenya that is using bio-diesel?
5. Suggestion given for the next forum were as follows:
- Identify more plants that can be utilized.
 - If possible the users of Jatropha bio-fuel could be invited next time e.g. Chrysler Daimler etc.
 - Cottage Industries.
 - Important to discuss the possible strategy in more depth.
 - Organize the forum in a more accessible venue. The seats at the venue were uncomfortable.
-

- Invite more people from the private sector and experts from model countries to share success stories and what we need to adopt.
- Capacity building in-terms of equipping institutions that can or produce process machines.
- Invite presentations from UNIDO and other development agencies.
- What practical measures is the Ministry of Agriculture taking to ensure the project of Jatropha takes of and time frame for us to feel the impact.
- The participants could be organized in groups during the discussions to fine tune some of the topics under deliberations.
- Planning the way forward that can be used for policy formulation by the concerned public sector.
- The real agronomy of the Jatropha should be brought forward. Production per litter of efficient bio-diesel etc.
- More time for elaborate discussions and focus group discussions.
- How to reduce imports of agro-machinery competitively.
- Various cost involved for value additions process for key sectors/industries.

LIST OF PARTICIPANTS

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<Tear-down Study Forum>

1.0. WELCOME, INTRODUCTIONS AND OPENING REMARKS

1.1. Welcome and Introductions

The Master of Ceremony, Dr. Moses Makayoti of KIRDI welcomed the participants to the one day workshop. The workshop started with a word of prayer followed by introductions from participants indicating their names and where they come from. Key guest drawn from JICA, the Ministry of Trade and Industry and KIRDI also introduced themselves. The JICA team comprised of Mr. Yoshio Nagamine, JICA study team leader, Takashi Horiguchi and Shohei Natsuda, the Ministry was represented by Mr. E.N Kimuri, Deputy Director Industry and Mr. D.G Magwaro and KIRDI was represented by the Director Prof. Ogada. A full list of the participants is attached to this report as an appendix.

The MC handed over to the morning session Chair Prof. T.P.M Ogada, Director of KIRDI.

Prof. Ogada started by giving a brief background on Kenya Industrial Research Development Institute (KIRDI), stating that KIRDI has been in existence for the last 60 years being incepted in 1942 by the British Government under the name of East African Research Development Initiative (ERDI). ERDI became inactive after the collapse of the East African Community in 1972; however there was a great need for an Industrial Research Institution and KIRDI was instituted in 1979. KIRDI is keen on the following areas:

- Engineering.
- Supporting government efforts in Industrial Research Development as an effort to accomplish the government's recovery programme dubbed the 2020.
- Technology Development.
- Reverse engineering concept as a means of realizing KIRDI's goals.
- Working with the Ministry of Trade and Industry to reach the industrialization status.
- Involved in the Master Plan study for Kenya Industrial Development in collaboration with JICA.
- Take active participation in the ministry of trade and industry to actualise MAPSKID and development of agro processing.
- Assisting in creation of technology enterprises both small and medium.

The aim of the Mombasa workshop was to transfer technology, learn, and form a network. The Prof. requested for active participation from the participants and asked the participants to be advocates of the process to many other enterprises that could benefit from the process.

1.2. Welcome Remarks

Welcome remarks on behalf of JICA were made by Mr. Yoshio Nagamine, JICA Study Team Leader. He started by indicating that they had been looking forward to the forum to be able to pass the

technology. He indicated that the study started in February, 2006 and will be ending in October 2007. The study has been a collaboration between the Ministry of Trade and Industry and JICA. JICA has held many workshops in this line but the Mombasa forum was special as a means of forming linkages. The last workshop was held in Nairobi and participants were very eager to embrace the technology.

He said, MAPSKID was a project based on an agreement between the Kenyan and the Japanese Government through JICA. The programme will contribute towards the achievement of the Kenya vision of 2030.

JICA looks forward to working with relevant authorities in developing the MAPSKID master Plan and make it available for implementation. The team leader stated that the participants opinions, comments are invited and will be important for the Master Plan. He invited the participants to a fruitful and enjoyable time learning about the teardown process.

1.3. Opening Speech by Mrs. M. C. Rotich Director, Industries

The opening speech was read by Mr. E. N. Kimuri, the Deputy Director Industries on behalf of Mrs. M C Rotich the Director, Industries. To kick start the forum he gave a brief introduction of reverse engineering in a layman's language saying that it was the tearing down of a machine to check what can be produced locally in the country.

He stated that Indonesian countries are way ahead from the help they have received from Japan on reverse re-engineering. The same can be applied in the Kenyan context to help in cutting down the costs of the equipments.

He then proceeded to read the speech of Mrs. M. C. Rotich the Director, Industries. The highlights of the speech were as follows;

The speech started by welcoming the participants who were drawn from the private sector, public and academic institutions. It was indicated that the forum on Teardown Study on electrical Equipment is part of the process of developing the Master Plan study for Kenya Industrial Development (MAPSKID).

The Director went ahead to acknowledge the Japanese Government support towards development of industries in Kenya and the current offering of technical assistance for development of the Industrial Master Plan for Kenya. She indicated that the workshop had been organized with the aim of transferring technology to our local manufactures.

Times are changing and it was high time the country takes a paradigm shift from exporting primary agricultural products to high value added products. It was noted that only twenty percent of the Kenyan land is arable which supports about eighty percent of the country's population of about 34 million people. Currently the traditional agricultural practices are already constrained and cannot be relied upon to realize the envisaged GDP growth of 10% per year for the next twenty-five years as envisaged in the Vision 2030, thus the need to refocus attention to value addition and knowledge based industries if we are to achieve the envisaged growth. Experience elsewhere shows that a strong and vibrant manufacturing sector can spur agricultural production through backward linkages.

The speech highlighted on the process of tear down as an avenue that will assist in diversifying the manufacturing sector since it's a process that calls for skilled manpower and markets and provides opportunity that is limited only by our efforts and imagination. The MAPSKID will be aligned to other efforts being undertaken by the government to develop the economy, including the Private Sector Development Strategy and Industrial and Investment Policy, MDGs among others in order to increase the synergy of efforts towards achieving faster growth in Industrial development.

Reverse engineering has worked very well in many economies among them the Asian Tigris and Japan and thus it is a proven method and not an experiment. Participants were encouraged to participate fully to understand how the concept can be effectively applied in the Kenyan context hoping that some participants may embrace the concept and undertake investments based on reverse engineering.

The ICT penetration in Kenya and other African Countries was still very low indicating that there was a large unexploited market which offers a great opportunity especially for Kenya which is expected to remain the hub for this region. It was highlighted that the tear down process involves very many products however the focus on the forum would be on Personal Computer, Ink Jet Printer and Vacuum cleaner as examples for demonstration only. The range of products is bound to expand depending on markets and the specific requirements of the products.

Industrial development is about innovation and investment, on this line that participants were encouraged to engage the consultant to explore possibilities that can suit their circumstances for the forum was collaboration between the consultant and the government in establishing ways of driving innovation and investment. It was indicted that to drive the process to success there will be a need to challenge our research and development institutions to take a new platform from where they will help to tap the emerging opportunities. It was mentioned that high tech companies in various countries are now shifting their manufacturing activities to other counties creating opportunities for developing countries and Kenya should not be left behind when other developing countries are seizing these opportunities.

It was said that, during the forum, participants would be taken through the tear down process for products they are familiar with by pulling them apart to demonstrate how the process is undertaken and participants were encouraged to utilize the opportunity to discuss and lay a foundation for development of this important sector in Kenya.

With those remarks the forum was declared officially opened.

2.0. OVERVIEW OF TEARDOWN ENGINEERING

This session was facilitated by Ken Oduda, OGW, Principal Research Scientist with Kenya Industrial Research and development Institute (KIRDI).

The presenter gave an overview of Tear down by first giving an introduction and definitions on the methods of technology development which are Forward Engineering, Reverse Engineering and Value Engineering.

Definitions

- Forward Engineering was said to be the most common traditional method of developing a product or technology and it involved developing a product or technology by implementing engineering concepts and abstractions.
- Reverse Engineering (RE) starts with the final product, and works backward. It involves recreating the engineering concepts by analysing the design of the system and interrelationships of its components to ascertain how it is structured, functions, operates and how it was designed by taking the product apart with the aim of making a new device or programme that functions in the same way without copying anything from the original.
- Value Engineering (VE) is the creation of an improved system or product to the one originally analysed in other words it is reverse engineering with improvements.

Roles

The roles of RE was said to be one of the methods of technology transfer and for building technological capacity while VE is a better method of building technological capabilities.

Stages of Reverse /Value Engineering

The presenter indicated that there are four stages of RE/VE. These are:

- Pre – screening
- Observation, disassembly and documentation
- Verification and implementation
- Creating of new product.

He went ahead to explain what each stage entails as per the explanations given below:

- Pre-screening – This entails determining the candidate product for the RE/VE project by analysing the singular items, parts, components, units and subassemblies.
 - Observation, disassembly and documentation – This involves disassembly or de-compilation of the original product with attempts to construct a characterization of the system by accumulating all the technical data and instructions of how the product works and also to be able to assess the cost implication. This stage is the most time-consuming aspect of the project.
 - Verification and Implementation – This involves verification of accuracy of the data generated by disassembly or de-compilation as accurate reconstruction of the original system. Verification of accuracy and validity of designs is done by:
 - Testing the system,
 - Creating prototypes, and
 - Experimenting with the results.
-

Often time's different groups of engineers perform each step separately, using only documents to exchange the information learned at each step.

- New Product – This is often innovation of the original product with competitive designs, features or capabilities. It may also be adaptations of the original product for use with other integrated systems, such as different platforms of computer operating systems. This stage also involves introduction of the new product into the marketplace.

3.0. KEY NOTE PRESENTATION

The Key note presentation was made by Takashi Horiguchi of the JICA Study Team. He started by giving a brief introduction of himself and the experience he has on the Teardown engineering, stating that he has over 13 years experience working in the Area of Teardown Engineering in various countries in Asia and Africa.

He presented a field survey that he had undertaken in the last one year (June 2006 – June 2007) and had so far studied 101 companies which fall in 18 types of categories. These categories and briefs are as follows:

Category	Brief
1. Metal and Mechanical Machines	In this category 17 companies were assessed and sampled out companies were: <ul style="list-style-type: none"> • Steel Recycling - This Company collects scrap metal and melts it in an electron furnace to produce steel which is used for manufacturing agricultural ploughs and steel rods. There main challenge is the high cost of electricity and possibility of unavailability of steel – metal in the next 2 – 3 years. • Aluminum Press - This Company melts scrap aluminum using oil fired furnaces and press aluminum pots for the United Nations. The demand of aluminum pots is high within Kenya and Tanzania as most household use firewood to cook
2. Plastic and Rubber	In this category 14 companies were studied. The sampled companies were: <ul style="list-style-type: none"> • PVC Pipes – This are made by extrusion molding and produce a variety of pipes used for various needs. • Tyres – Tyres manufactured to basically suit the Kenyan Market and Roads. • Injection Molding Goods – goods are produced by injection molding.
3. ICT	11 companies had been studied in this category the sampled companies were: <ul style="list-style-type: none"> • Cable wire maker – this company imports the raw materials imported from Zambia, then metal cables are produced for the local market. • Call Centre – this company offers Back-Office services to US companies and Kenya has a strong selling point over India due to the fluency of English Language.
4. Food and Beverages	9 companies were assessed. The sampled were: <ul style="list-style-type: none"> • Soda and Drinking Water – The Company makes beverages (soda). Branded bottles are washed , filled and capped using an automated production line. • Fish Processing – The Company buys raw fish (Nile Perch) from Lake

	Victoria , processes, pack and exports it to Japan and US. The remains are sold to the local market. The firm hopes to start producing high value added goods e.g. fish sausages, fish oil and cosmetics.
5. Electric & Electronics	9 companies were assessed. The sampled were: <ul style="list-style-type: none"> • Electric Switch Control Panel – Produces panels to counter electric power-surges and fluctuations. The technology is similar to what is used in Japan. • PC Company – Produces its own brand of computers locally and production capacity is 300 pieces per month. All parts are currently imported. • Wind Generator – Designed locally and works by using used car gearbox.
6. Education Institutions	6 institutions were assessed: The sampled ones were: <ul style="list-style-type: none"> • Mechanical Engineering Department – Machines used are very old, they have intentions of buying new machines but the lecturer has no information/knowledge on the latest models. • Electric Engineering Department – Machines in use were donated at the same time and bound to depreciate (get old) at the same time.
7. Automobile	6 companies were researched on: Sampled ones were; <ul style="list-style-type: none"> • Automobile Companies – The three companies in Kenya have to compete for the small Kenyan Market each company produces about 2,000 – 4,000 units while the Toyota counterpart in South Africa Produced 124,000 units in the same year (2005). Low production in Kenya has led to “manual operation line” unlike in the developed countries where the lines are automated. Vehicle body’s in Kenya is done by using old machinery. • Automobile Leaf Spring – Production involves spring steel imported from South Africa. The Leaf Springs manufactured are mainly meant for trucks.
8. Chemical	5 companies were assessed. Sampled one was: <ul style="list-style-type: none"> • Kapi – this Company manufactures mosquito coils and mos-chips using pyrethrum. However due to low profits to the pyrethrum farmers, the pyrethrum production in Kenya has gone down and the company faces stiff competition from cheap imports from India and Malaysia.
9. Paper and Printing	In this sector 4 companies were assessed. The sampled ones were; <ul style="list-style-type: none"> • Book Manufacturer – Donors fund the production of school books by this company, thus production depends entirely on donors support. • Paper Milling – The Company had a 31 years agreement with the government which has since expired and contracts are on yearly basis which create uncertainty of the future.
10. Die Maker	4 Companies were assessed. The two sampled use different ways to make the dies as follows: <ul style="list-style-type: none"> • The first company produces dies for injection molding and blow molding. They design dies using CAD technology and produce dies using electric eroding machine and metalworking machines. • The second designs dies using CAD technology, then translate to CAM-data by computer. There die production uses numerically controlled machines and the electric eroding machine together with other metal working machines.

11. Pharmaceutical	3 companies were visited. The one sampled out produces generic medicine. This company imports the raw materials from America and China which are used to manufacture low cost generic medicines for Malaria.
12. Textile	3 companies were visited. The two sampled out were: <ul style="list-style-type: none"> • Sisal bags Company – Sisal bags are obtained from Machakos and Kitui in Kenya. Straps are attached to the bags as per the buyer's requirements. The organization has visited Japan with the help of a Japanese organization JETRO to sell its products however their worry is the travel expenses to Japan. • Trouser Company – The Company has opened a factory in Mombasa EPZ. This company might opt to relocate from Kenya, after its AGOA agreement expires.
13. Agro Machinery	3 companies were assessed in this sector. The company sampled out assembles tractors and is only able to assemble 4 tractors in a month using knock-down tractor parts imported from German and England. Currently the sizes of farms are becoming smaller thus the market for agricultural machinery is also becoming smaller.
14. Concrete Products	2 companies were visited in this area. The company sampled out produces concrete products using cement and ballast produced locally. Though it's the only company licensed to work within Nairobi, its operations have been limited due to the development of different infrastructure within its vicinity.
15. Furniture/ Handicraft	2 companies were assessed. The company sampled out makes furniture from raw materials imported from Congo. They use machinery imported from German and Italy and the main challenge faced is getting spare parts when the machines break down. The other challenge is that Plastic furniture produced from China is slowly penetrating the market and are cheaper by 30%.
16. Leather	1 company was visited, a Leather processing factory. The company produces leather from raw hides purchased locally. Washing, drying and dyeing of the products is done at the factory and 100% of the products are exported to India and South Africa. China buy raw hides directly from Kenya and this has contributed to the local price market going up leading to reduction of leather processing companies from 23 to 6.
17. Transport	1 company was assessed. The transport company transports flowers from Naivasha and other places in Rift-valley by tracks to Nairobi for exportation to EU countries. 1 flight is made per day. The company has its own cold room facilities
18. Flower	1 company was visited. This company produces roses. They hope to export the flowers to Japan and are in the process of looking for a Japanese breeder and dry-flower engineer.

Conclusion

From the survey undertaken from the 101 companies it was concluded by the consultant that most of the companies required support in the following three areas:

1. Marketing research,
2. Collaboration with relative company, and

3. Technical support.

• **Marketing Research**

Problem: Most Kenya companies can produce many kinds of parts however they have no information about foreign company needs. This limits them in terms of trade with foreign companies especially in the areas of plastic and metal parts.

Counter measure: Teardown process is the best option to research foreign company’s needs. By taking apart foreign companies goods, Kenyan companies will be in a position to find many parts which the companies can produce locally with higher quality or at a lower cost.

• **Collaboration**

Problem: Kenya has different types of companies especially in the areas of die, Plastic mold and metal press. However their collaborations are weak and therefore they cannot develop assembly type of industry.

Counter measure: Field survey offers the best way to access information from other companies. By using the survey data (e.g.: productivity, quality, facility), Kenyan companies can find local parts companies they can start assembly business with (e.g.: PC, Printers).

• **Technical Support**

Problem: Kenya is far from Asian Industrial Countries. This creates a barrier to access modern technical Information.

Counter Measure: Teardown offers the best option to get modern technical information. By taking part of foreign companies goods, Kenyan companies are able to obtain technical information and use it to develop local goods e.g. home electronics.

Questions, Clarifications and Comments

The session Chair Prof. Ogada took the participants through a question, clarifications and comments questions referring to the presentations made.

Questions raised and responses given were as follows:

Questions	Responses
1. How can reverse engineering be implemented without interfering with the intellectual patent right.	<ul style="list-style-type: none"> • Redesign and come up with parts with authority from the patent company. • Reverse engineering is currently recognized and accepted worldwide. • Most products are not patented thus this makes it possible to practice reverse engineering without the fear of legal implications. • It is legally possible to steal other people patents if the legal act has not been passed in the practicing country e.g. Kenya. • Get information on the technology, research the market to

	access the levels of demand for the market. If the technology is not protected you are free to use it.
2. The change in the communication information technology sector is rapid and this resulted to the close down of the Gilgil Telecommunication Plant. How can you keep up with the rapid changing technology?	<ul style="list-style-type: none"> • Continuous learning. Keep up with the new technology and engineering ideas and trends by visiting other companies to learn what is happening. Sources where one can acquire information or learn from are the trade and industrial fairs. • Teardown seminar is also a source of technology transfer. • The plant went into production without considering the future and that was a learning point for future planning.
3. If one wants to practice reverse engineering, what support can be offered from the government and JICA?	<ul style="list-style-type: none"> • JICA in collaboration with the government and other actors like JETRO and KIRDI are working together to make the Teardown process as practical as possible. • There are plans underway to identify projects that can be funded by JICA to actualize the Reverse engineering process. • The next phase of MAPSKID will look into what assistance can be provided. • There are other sources that provide financial and technical support these include; <ol style="list-style-type: none"> 1. Kenya Industrial Estate – offers financial & technical support. 2. KIRDI – offers technical support. • The ministry is also looking into ways of starting a programme that will facilitate dissemination of information on how one can benefit on industrial issues to those with technical knowledge. • From the Teardown workshops they will be looking for entrepreneurs who will be willing to take up the challenge and invest in reverse engineering and KIRDI, JICA and the Ministry of Trade and Industry will be willing to work with them to actualize the process.
4. How can one make sure that the car is the best through out the world?	<ul style="list-style-type: none"> • This is a difficult point to reach to because of the always changing technology; however one can work with the local and international standard bodies to be able to produce products that meet the local and international standards. • An example was given of the Jua Kali Sector where 6 entrepreneurs are currently producing a welding machine which is inefficient, ugly and dangerous but it works. The plan, with the help of KIRDI is to import a welding machine, assist the 6 entrepreneurs to disassemble and reassemble the machine and learn from the process. The Kenya Bureau of Standard will be involved to help them meet the international standards. This will enable the entrepreneurs to produce machines that meet the international standards for

<p>5. Energy cost and taxation in Kenya and Africa are high leading to escalating production cost. How can these issues be addressed to facilitate reduction in the cost of production.</p>	<p>export.</p> <ul style="list-style-type: none"> • The ministry is currently looking into ways and solutions to cut down on the overhead expenses. • The other alternative is to look into ways of diversifying sources of energy. It was mentioned that upto about 60% of energy is wasted in industries while ways can be looked into to reduce the wastage thus cutting down on the cost of energy. • The Deputy Director Industry indicated that the main goals of the Private Sector Development Strategy and Industrial and Investment Policy are: <ul style="list-style-type: none"> - Creating an enabling environment. - Institutional arrangement for private and public sector. - Creating and looking for markets. - Improving the productivity by reducing the overheads. - Development of SME's <p>The above goals if achieved will go along way in reducing the costs of production.</p>
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4.0. TEARDOWN OF PRODUCTS

This session was chaired by Dr. M.C.Z. Moturi and facilitated by the Key Presenter Mr. Takashi Horiguchi.

To start the session the consultant started by highlighting the purposes of teardown and the success rate of the technology. The purposes of teardown are to;

1. Find new buyer to trade with,
2. Find new supplier to trade with, and
3. Analyse rival company's products.

It was indicated that Toyota uses reverse engineering a lot, tearing down other companies vehicles and coming up with new parts and models of vehicles.

The facilitator gave three practical success stories to the teardown process.

- **Success story from Japan**

The company relocated production from Japan to SE Asia. Tore down their own equipment and showed it to SE-Asian Suppliers. They then went ahead to identify good suppliers they could trade with and facilitated them to start production with low cost equipment.

- **Story from China**

Company tore down Japanese equipment, developed similar equipment and then developed the original equipment.

- **Story from Thailand**

Tore down Japanese equipment, found parts which they could produce locally by themselves and

now produce parts for Japanese Equipment.

If this teardown process is adopted in Kenya then it would entail;

- Teardown of foreign equipment.
- Find parts which they can produce by themselves.
- Produce parts for foreign equipment.
- Produce Kenyan Equipment.

The idea behind this process is to help Kenyan manufacturing companies produce their own equipment.

4.1. Teardown of Product 1

This was a hands-on experience session where the participants were given an Inkjet Printer to teardown, study the parts of the printer and indicate what they think could be produced locally and what cannot. The participants were given a sheet of paper which contained 120 parts of the Ink Jet printer and asked to tick on the parts they felt that can be produced locally.

Participants on their own, with little assistant from the JICA team dismantled the whole of the printer and assessed each part seeking clarifications from the consultant and filled in their forms. The forms were then given to the consultant for analysis.

The consultant presented the above chart to analyse the percentage of parts that make up the inkjet Printer. From his analysis it showed that most of the parts can be produced at a low cost and Kenya is capable of producing 73% of the parts that make up the Inkjet Printer and thus the importance of the teardown training as a means of technology transfer.

The weak point in Kenya was identified as lack of technology, experience and inability to make production in large quantities (big volumes) which lowers the cost of production. However Kenya has the capacity to produce the parts at a cheaper rate and the market is viable for expansion.

The consultant gave the estimated cost of production of each part and some costs were as low as US\$ 0.0003 which was equivalent to producing them at no cost.

4.2. Issues for Clarification

The session chair facilitated participants in asking questions and points of clarification. Arising questions and responses were as follows:

1. How did the consultant arrive at the costs of the parts production?

The consultant gave a formula for calculating the cost as follows:

Cost = Machine rate x press speed per sec (volume of parts produced per year).

Machine rate = US\$10

Press Speed = 0.1 sec

$$10x (0.1\text{sec} \div 3600) = 2.8e - 4 = 0.0003 \simeq \text{free}$$

2. From the analysis it indicates that 73% of the parts can be produced in Kenya. Does Kenya have the machinery to produce the Inkjet printer?

The consultant responded by saying that from the survey carried out in the 101 companies showed there was the ability for production using the molding and pressing machines which may be obtained (purchased) but the cost of purchasing this machines can easily be covered with the high volume production realizing profits faster.

3. What is the possibility of collaborating with global companies to produce parts for the global market?

The consultant answered by indicating that before undertaking a reverse engineering process its important to research on the market for the ability to produce high volumes which help in cutting down the production cost for the same market.

4. A comment was given in relation to importation of metal which is currently very high and the cost given for production of the parts could vary depending on the Kenyan market. The government should come up with solutions that would help in cutting down the costs of importing of raw materials.

Teardown of Product 2

The afternoon session was chaired by Mr. E.N. Kimuri.

The product for teardown was the vacuum cleaner. Together participants set apart (dismantled) the vacuum cleaner analysing the parts and accessing the possibility of their production locally. As in the first practical session participants were given a sheet with 124 parts of the vacuum cleaner and asked to tick where they felt the part could be produced locally. The sheets were given back to the consultant for analysis.

The consultant presented the above chart to analyse the percentage of parts that make up the vacuum cleaner. From his analysis it showed that most of the parts can be produced at a low cost and Kenya is capable of producing 71% of the parts that make up the vacuum cleaner. Kenya has the technology and what may be required is the molding and pressing machine.

The personal computer was disassembled by the JICA support team. From the analysis shown in the above graph indicates that 75% of the computer comprises electric parts. 25% of the parts can be produced in Kenya thus it would be very expensive for Kenya to produce the personal computer locally.

From the comparison of the ratio of cost between the three units of Inkjet Printer, Vacuum Cleaner and Personal Computer it was realized that the inkjet printer and vacuum cleaner would be a better choice for value addition in Kenya. With the teardown process more products can be assessed to find out what can be produced locally and at a low cost.

Questions, Clarifications and Comments

1. How can the standards of production be achieved to allow international exportation?

The consultant indicated that the products used in the forum had not international standards but used the manufacturers (company) own internal standards. He also mentioned that other than the communication products most of the others do not have international standards.

2. What are the assemble parts?

This was said to be the time taken to put a product together.

3. Are there parts of the inkjet printer being produce in Kenya at the moment.

The consultant indicated that no parts were being produced locally as per yet.

4. If a company is to undertake the teardown process to produce a part of a product for the established companies in China or any other place would the JICA team be willing to connect the Kenyan companies to the Chinese and Japanese companies?

Participants were asked to obtain the information from KIRDI.

5. Are there other products that have been researched in the teardown process?

The consultant indicated that the research is still ongoing but so far in Kenya only 4 machines had been analysed, however in Japan the consultant has worked with over 50 products. The essence of the process is to import complex products teardown and learn how to produce them.

6. Most of the developed countries are using the CAD and CAM technologies, what effects will it have in Africa?

Its easy to use the CAD data communication system since it can easily be sent through email and produce the designs made easily. It is easier than putting the designs in paper which is time consuming. The consultant indicated that the molding cost in Kenya is high due to high energy costs, however Kenya could think of alternative ways of acquiring low cost energy. He gave an examples of nuclear generators manufactured in Japan which were cheap to operate and have a life span of 30years and a capability of producing 50,000 Kilowatts (50 mega watts). Such a generator would cost about 7.5 billion.

7. How much original research is put into material technology?

The consultant indicated that most Japanese companies use the research directory and visit other companies to learn the new concepts and cheaper production options.

8. How can the 3D technology be transferred from Japan or what are the other possibilities or options of acquiring this technology.

The consultant indicated that in relation to the teardown process what happens is that it is not possible to take a photo, what happens is that suppliers observe the parts and then produce them by themselves.

9. What are the implications of transfer of nuclear technology to the developing countries?

The consultant could not explain the implications but stressed that without energy there would be no industrialization.

5.0. WAY FORWARD

The session Chair Mr. Kimuri facilitated the way forward. In plenary, participants came up with the following points as the way forward.

1. Receive assistance from Japanese manufactures in terms of designs and apply it to the Kenyan context to allow the possibility of local production.
 2. Hold another forum as Kenyans to assess the capabilities present and what can easily be produced locally at low cost.
 3. Focus on high value components and produce in mass other than produce low value components for wholesale.
 4. Increase the local content by vigorous interactions between local companies and private sector to increase the local content in imported technology through reverse engineering.
 5. Hold another training workshop in Western Kenya on Teardown (Reverse Engineering).
 6. The JICA team to facilitate linkages between Japan manufactures and Kenyan ones to establish faster growth.
 7. Study team to forward the recommendations to JICA. There is need to have a pilot plan in two place in Kenya in reverse engineering especially in the plastic sector through the Ministry of Trade and Industry and KIRDI.
 8. The Ministry of Trade Mombasa to identify enterprise that are interested in participating in the Teardown process for them to be trained further with the aim of coming up with model projects.
 9. A follow-up training is required for Mombasa targeting more participants from the private sector.
 10. Strategy to be put in place to transfer the know-how (technology) to a local institution and preferably KIRDI in liaison with the Ministry of Trade and Industry to allow capacity building for sustainability after JICA winds up the programme. KIRDI will be able to facilitate Training of Trainers courses on the teardown process.
 11. Subcontracting – Linking small enterprises with large enterprises to have the large companies involved in the teardown process.
 12. Strongly continue collaboration between KIRDI and the Ministry of Trade and Industry to promote the Teardown Project.
 13. A similar study to be done on the Small and Medium Enterprises (SME's) to access their capabilities in Reverse engineering.
 14. To commission a study on the SME's to gauge their levels of involvement in the Teardown process
-

(evaluate level of involvement).

6.0. EVALUATION

Participants evaluated the workshop as per the evaluation forms given to them. The evaluation is based on 19 participants. Three evaluation questions were rated on a 1 – 5 basis, 1 being the lowest rating, 3 fair and 5 the highest rating. 2 and 4 stood for between low and high.

1. The participants were drawn from different Sectors as follows; 7 were drawn from the ministry, 6 from research institutions/academics, 4 from the private sector, 1 from public institutions for enterprise development/services and 1 from others category.
2. The overall impression of the forum was rated as follows; 12 participants indicated that the forum was very interesting (mark 5) and 7 said the forum was good (mark 4).
3. 12 participants felt that the tear-down methodology was very useful for development of the manufacturing sector in Kenya, 4 said it was useful (mark 4), 2 said it was fair and 1 person said it was least useful.
4. 14 participants indicated that they would very much wish that the Teardown forum was held again in Kenya, and 5 said it should be held again (mark 4).
5. Suggestion given for the next tear-down study forum were as follows:
 - Next forum to include assembly of parts after dismantling has been completed.
 - Hold the forum at each of the National Polytechnics.
 - More publicity of the Teardown process targeting industrialists and make industrial visits.
 - Establish cost benefit analysis and market identification strategies.
 - Standard enforcement mechanisms for component manufacturing by industries.
 - Develop manuals for training of Training of Trainers (TOT).
 - The 1 day forum is inadequate extend the time to about 3 days and include a facility visit - 2 Participants.
 - Certificates be awarded after the workshop.
 - Include members of Kenya Bureau of Standards who can address Kenyan standards vis – a –vis international standards.
 - Change the cost of production and raw materials into Kenyan currency instead of using the dollar rates.
 - Address mechanical equipment as most of our Jua Kali industries are mechanical based.
 - Teardown to be followed by value added engineering procedures.
 - The Teardown should consider involving the Jua Kali artisans (informal sector) or organize a forum for them to be able to improve on their products - 5 participants.

- Concentrate on high value products.
- Involve (invite) those in the manufacturing/production sector to motivate them in improving their knowledge and production efficiency - 3 participants.
- Assistance by Japanese manufactures to provide designs for molds upon which Kenyans can improve with time.
- Train local people to be able to continue training others once the Japanese consultants have left to allow tear-down initiative to take effect.
- Involve small scale entrepreneurs in areas around River Road, Grogon and other places since they have the aspect of quick learning and copying and they could use the Teardown process to an advantage.
- Have more practical sessions including more products and invite people of diverse specialisation.
- Involve the people in the informal sector in bigger numbers. These are the people who could benefit the most, they deal in manufacturing and need to be encouraged in the line of innovation – 2 participants.
- The next forum should also give indications of the investments involved and guide locals on the technology to manufacture the products.
- Next forum to give more information on agricultural and industrial machinery which can be easily marketed in African and Middle East.
- Come up with a programme to empower those who have attended the teardown forum to sell the message to others.
- Young people with talents need to be encouraged and incorporated in the programme to let them benefit from the study.
- Teardown not for bureaucrats but for technical officers.

6. Suggestions given for development of the manufacturing sector were as follows:

- Have in place a standing implementation team for each industrial sub-sector.
 - Reverse Engineering and Value Engineering.
 - Government Support.
 - Cooperation from the industry sector.
 - Policy formulation for manufacturing incentives.
 - Manufacturing process dynamics and automation.
 - Value adding manufacturing sector - 2 participants.
 - Local content to be enhanced.
-

- Ensure standards are in line with international standards or as close as possible.
 - Look for similar forums where people exchange ideas and technologies.
 - Form partnerships and groups that can train and give exposure so as to be conversant with what other groups are dealing with in similar situations.
 - Embrace Teardown but focus more on innovations.
 - Market research and information dissemination are key to the success of any sector.
 - Manufacture parts with higher value and at a faster and cheaper rate.
 - Encourage the manufacturing sector to be innovative and if need be, rewarded for their achievements.
 - Review and reduce electricity cost to manageable levels to encourage and lower production costs. Energy cost is a hindrance to the growth of the sector.
 - Put in place incentives to encourage research activities in the manufacturing sector.
 - Reduce the cost of taxation in relation to importation of raw materials to lower the costs of importing raw materials, in order to reduce the cost of production.
 - Look for means and ways of reducing the energy cost such as:
 - The centralization of a few nuclear power stations in Africa. These stations would supply to a set number of nations while staff and safety will be catered by the group of Nations in the liaison.
 - Buying power from South Africa, the SADAC Block can extend power in Kenya.
 - Upgrading our transmission line to handle the higher power that will be used in developing companies and interested consumers.
 - To urgently address issues concerning investment climate to reduce cost of production.
 - The Teardown concepts should also be extended to equipment which are not affected by quick changes of technology e.g. motor vehicle spare parts.
 - Send invitations for such forums early to the targeted groups and also target groups that would benefit the most. Too many representatives from the Ministry. Approach the manufactures directly.
 - Presenters should also advice the locals on the possible markets for the products. It would be helpful if the manufacturers have an idea on what would be marketable overseas. This would help the manufacturers to invest wisely.
 - Assistance on market research and requirements will be helpful.
 - Come up with strategies to ensure that whatever is learnt is put into practice.
 - Need to look for demand for the components to be manufactures by them.
-

- Create lines that can be able to manufacture these components to compliment what they are producing at the moment.
- By-products of main manufacturers like mattresses can easily be used to produce other small components for other manufactures.
- Need to create more forward and backward linkages for other manufacturers for growth and development.

7.0. VOTE OF THANKS AND CLOSING

Vote of Thanks

On Behalf of the participants, Bernard Kimwere of KPA gave the vote of thank indicating that it was a high time for Kenya to start manufacturing their own products such as agricultural parts and even bicycles. He indicated that some of the first African leaders such as Nkrumah, Kenyatta, Nyerere and Martin Luther King fought so that they could liberate Africa from poverty and they should not be let down, but the fight of poverty should be stepped up.

Kenya should aim at becoming an industrialized manufacturer for export to help our nation grow.

He thanked the Director of Industry, the Study JICA Team, all the Facilitators and the Session Chairs for the tremendous input towards making the workshop a success.

Closing Remarks

In closing the workshop the Master of Ceremony Dr. Makayoto of KIRDI indicated that the Teardown process will play a big role in achieving the 2020 plan and it was a high time the reverse engineering went full blast and be propagated in the country. He also indicated that there will be a need to come up with a professional training and come up with good manuals on reverse engineering.

He finished by saying that the way forward that the participants came up with will play a big role in achieving the reverse engineering goal.

The workshop was officially closed at about 5.15 p.m. and participants were invited to tea and networking

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Annex 10 Record of National Seminar

The National Seminar of MAPSKID held in Nairobi, November 2007

1.0. WELCOME AND OPENING REMARKS

The Moderation of the Morning Session Mr. David Opiyo the General Manager Industrial Estate started off the MAPSKID National Seminar by recognizing and welcoming the Permanent Secretary Ministry of Trade and Industry, Mr. David Nalo, Resident Representative of JICA, Mr. Yoshiyuki Takahashi, representatives from the JICA Team, UNDP, USAID, EPZ and the participants. This was followed by a word of prayer before the Ag. Director of Industries, Ministry of Trade and Industry was called upon to give the opening remarks. A full list of participants is attached as an appendix to this report.

1.1. Welcome Remarks by Ag. Director of Industries, MOTI Eng. Erustus Kimuri

In his opening remarks, he welcomed the participants to the Seminar indicating that MAPSKID was in its final stages and it was important for participants to be engaged open discussions and give recommendations that could be fed to the final document.

He mentioned that the emphasis should be given on the implementation of the study, highlighting some of the projects that have been undertaken by the Japan Government and have had a great impact sighting the Institute of Capacity Building in Africa and Jomo Kenyatta University of Technology.

He wined up with the hope that MAPSKID will have the same impact the other projects funded by JICA have had and that will speed up the process of Industrialization in Kenya.

1.2. Welcome Remarks by Resident Representative, JICA Kenya Office Mr. Yoshiyuki Takahashi

He started by saying it was a great pleasure to be at the National Stakeholder Seminar on the Master plan Study for Kenyan Industrial Development (MAPSKID).

On behalf of Japan International Cooperation Agency (JICA) he welcomed all to the National Stakeholders Seminar on MAPSKID. He said he was deeply encouraged and grateful to you all for taking time off your busy schedules to join in the discussions. Our sincere appreciation go to the Permanent Secretary, Ministry of Trade & Industry, Mr. David Nalo and his staff for their leadership and stewardship in implementing this study.

He said that the Seminar marked the near completion of a consultative process in the development of a Master plan for Kenyan Industrial Development. The study commenced in February 2006 and has involved several field visits jointly conducted by the JICA study team led by Mr. Nagamine and the MOTI staff. A number of workshops and forums have also been held to determine the target sub-sectors and very detailed in-depth studies conducted on the entire industrial sector. These consultations would have not been successfully undertaken without the support of all the stakeholders gathered in the seminar and for this great work and cooperation, he said **Ashanteni Sana!**

He briefly touched on the objective of the study despite that most of the participants were familiar

with the MAPSKID study. The overall goal of the study was to promote the industrial development of Kenya with emphasis on the target sub-sectors. The study covered the entire Kenya with a focus on the manufacturing sector.

However, the Information Communication Technology (ICT) sector was studied as well given that ICT is a driving force for industrial development. Three target sub-sectors were subsequently selected through a very analytical and consultative process. The three sub-sectors include Agro-processing, Agro-machinery, Electric, Electronics and ICT. The action plans for these three sub-sectors have now been developed and will be discussed during today's seminar.

He said; JICA recognizes that the MAPSKID study was undertaken at a time when critical national documents are being developed and wanted to assure all that the MAPSKID study took cognisance of these developments and had made all efforts to align the study to these policy documents. Notably, he noted that the Vision 2030 identifies the manufacturing sector as one of the six key sub-sectors that have the greatest potential.

It is also gratifying to note that the draft Trade & Industrial Policy recognizes Agro-industries, Electronics, and ICT as some of those sub-sectors that will require to be developed. More importantly, the MAPSKID study is fully embraced under Pillar three of the Private Sector Development Strategy (PSDS) on Economic Growth and Trade Expansion.

The objective of the seminar was to really share the draft final report on MAPSKID study with a view to improving the quality of the study results and invited comments and inputs that would be enriching to the final report and looked forward to highly interactive discussions and a rewarding outcome that will ensure that Kenya truly industrializes and in turn impact positively on the country's overall economic development.

He concluded by conveying sincere appreciation to the Ministry of Trade & Industry for their leadership and commitment in the entire process of coming up with the MAPSKID study.

1.3. Official Opening by the Permanent Secretary of Ministry of Trade and Industry Mr. David Nalo

The Permanent Secretary, started by recognizing the presence of the Resident Representative, JICA Kenya Office Mr. Yoshiyuki Takahashi and the Stakeholders present.

In his opening remarks he recalled when the Study was started in Feb 2006 and two years down the line that study was coming to an end and indicated that he was looking forward with excitement to receive the final report by the end of this year (2007). He mentioned that this would require a sense of agency in terms of delivery.

He took time to express gratitude to the JICA and the Government of Japan for their continued support and unfailing partnership, indicating that MAPSKID was yet another illustration of the support Kenya continues to enjoy, an indication of the cordial relationship existing between the two countries.

On the same breadth, and on behalf of the Ministry of Trade and Industry the PS took time to

recognize the support and efforts extended to the Ministry especially in undertaking the Master Plan Study and the commitment to support the implementation of Kenya's first ever Private Sector Development Strategy which was launched recently by the Government of Kenya through the Ministry of Trade and Industry and whose the main objective is to create a conducive environment for the growth and competitiveness of the private sector.

The PS acknowledged that the seminar brought together stakeholders from a varied front of private sector, academia, government and donor community to discuss various issues on how industrial development can be accelerated in the country. He hoped that detailed discussions would emerge during the refining of the final Master Plan and its Action Plans.

He indicated that the completion of the Master Plan is one of the achievements of the Economic Recovery Strategy Whose implementation was coming to an end. The Master plan will form the first initiative in the implementation of the industrial policy, which in turn draws strongly from vision 2030. He said that during this seminar, participants would be able to discuss the element of the Industrial Master with regard to priorities spelt therein and way forward for Industrial growth in Kenya.

He pointed out that it was unfortunate that the industrial growth in Kenya now was not relating to the growth of economy. The manufacture value addition was not being felt and there was a need to improve on the current situation to increase the competitive advantage of the sector. He indicated that the selected sectors in MAPSKID; agro-machinery, agro-processing, electrical, electronic and ICT were critical in value addition of our local industries. He said appropriate industrial policies were a prerequisite for any growth to take place. With good policies, the growth of the industrial sector would be inevitable resulting to expansion of the sector leading to creation of the so much needed job opportunities.

He gave emphasis on the agro-processing sector as one of the sectors to be given priority due to the importance of creating the backward and forward linkages for the agricultural sector, which remains the focus, and the country moves towards the 2030 vision.

The PS gave an illustration of a visit the undertook to Kamkunji with four other institutions among them KIRDI, KEPSA and KBS, the aim of the visit was to find a way of assisting the Jua kali artisans to be able to produce a product of high standards. An MOU was reached and signed between MOTI with the four institutions and now they have an industrial product. The illustration was meant to emphasize the need of collaboration with the relevant sectors to be able to move forward the manufacturing sector.

The PS acknowledged that this country needs to have a paradigm shift from being dominantly an exporter of semi-processed agricultural products to give more focus on high value added products (manufacturing). It was noted that only 20% of our land is arable and this supports about 80% of the country's population of about 34m people. In addition the traditional agricultural practices are already constrained and cannot be relied upon to realize the envisaged GDP growth of 10% per year for the next twenty-five years. He said that it was therefore imperative to refocus attention to

manufacturing and in particular, value addition and knowledge based industries, if we are to achieve the envisaged growth. He said experience elsewhere shows that a strong and vibrant manufacturing sector can spur agricultural production through backward linkages. This means that focusing on manufacturing is a win-win situation for both the agricultural and manufacturing sectors.

He indicated that once the Industrial Master Plan is developed it will provide a mechanism through which the Government of Kenya will leverage and catalyse the implementation of strategic actions to accelerate industrial development and enhance industrial growth and competitiveness. This will in turn contribute in achieving the objectives outlined in the vision 2030 and will enable Kenya meet her broader development aspirations, including the Millennium Development Goals (MDGs).

He urged the participants, that as they discuss the Industrial Master Plan, there was a need to be aware that the Ministry was in the process of finalizing a Trade and Industrial Policy and there was need to ensure that the two documents are harmonized at the same time implementable.

In summing up his speech the PS, said the ministry recognized the important role being played by the private sector as a leading actor in the Country's economic growth and was glad to note that the ministry has started the implementation of the Private Sector Development Strategy (PSDS), which aimed at involving the private sector in industrialization process.

He urged the participants to take advantage of the seminar to discuss and contribute towards the final stage for developing a sound industrial Master Plan for Kenya. And with that remark he declared the workshop officially open.

2.0. OVERVIEW OF MASTER PLAN

The overview was presented by Mr. Yoshio Nagamine the team leader of JICA study Team. In his presentation he stated that the study was started in Feb 2006 and the study was informed by the activities undertaken during the study period which included forums and workshops, visits to institutions/companies and consultations with other actors.

The presentation was divided into five sections, this were:

- ☞ Purpose of Industrial Development master Plan
- ☞ Recent trends of Kenyan Economy and Industry
- ☞ National/industrial Development Policy and Framework of National Economic Development and Industrial Development
- ☞ Action Plan of Kenya Industrial development
- ☞ Development plan of target sub Sectors

2.1. Purpose of Industrial Development Master Plan

The presenter started by highlighting the purpose of the Industrial Development Master Plan.

Overall Goal

The overall goal is to promote the industrial development of Kenya with emphasis on the target sub

sectors.

Project Purpose

The purpose is to have the Master Plan adopted as a component of Economic Recovery Strategy (ERS) and to implement with initiatives of Ministry of Trade and Industry (MOTI) and cooperation from the private sector.

Outputs

- ☞ To develop the Master Plan comprising a master plan, action plans and a development plan of the target sub sectors.
- ☞ To transfer skills and knowledge to the counterpart for developing the Master Plan. This has already been taking place in collaboration with MOTI and some officers from the ministry had already visited Japan.
- ☞ To strengthen the public and private partnership through promoting dialogue.

2.2. Recent Trend of Kenyan Economy and Industry

This section looked at the current economic trends in Kenya and the national/industrial development present situation and future directions.

In relation to the recent trend of Kenyan economy four sectors were looked at, this were;

- 1. Economy and Industry Sector:** According to statistics given in 2006 it showed that the economy had a growth of 6.1 % and the GDP share of manufacture sector was at 11 %. This is an indication that the share of the manufactures sector needs an upward push and it was hoped that MAPSKID will boost the growth of the manufacturing sector to contribute more to the GDP share of the country.
- 2. Manufacturing Sector:** According to statistics on production value 2004 that food, beverages and tobacco had an income of Kshs. 232,535 million. Chemical related products accrued Kshs. 19, 720 million totalling to Kshs. 334,169 million.
- 3. Employment Sector:** A statistical breakdown of employment trends of 2005 showed that the formal sector employed 22 %, the informal sector 78 % and the manufacturing sector 3%
- 4. Market:** Domestic market consists of products imported with cheaper price in formal market. Export Market, tea approximated 20 % of the total export market 2nd after horticulture with an approximate of 21 %. The share of 3 countries; Uganda, UK, US approximates 30 % of total export.

2.3. National/Industrial Development Policy and Framework of National Economic Development and Industrial Development

The presenter pointed out the long and short-term policy development and frameworks of national economic development and industrial development being undertaken in the country. The diagram below highlights the policies being undertaken.

The presenter highlighted some of the roles and activities being undertaken to ensure that the long

term and mid term policies are achieved.

2.3.1. Ministry of Trade and Industry

The ministry has two major roles to play in regards to the above policies

1. Role and organization
 - Role
 - Organization
 - Finance
 - Issues
 - Reforms
2. Institutional Capacity Development
 - Consultation with other ministries
 - Service provision by private sector
 - Institutional settings

2.3.2. Institutional Framework Relating to Public Administration

Three key areas were highlighted on:

1. Public institutional Framework; this entails
 - Economic and business related legal system
 - Regulatory framework of SMEs
 - Intellectual property right
2. Statistical Data on Trade and Industry
 - Industrial information
 - Improving availability of industrial information
3. Infrastructure relation to Industry which applies to 1 and 2 above
 - Financing
 - Energy (Electricity)
 - Water
 - Transport

2.3.3. Content of Industrial Development Support

An activity that has been suggested is the creation of the one stop service centre. The model proposed is shown below:

2.3.4. Consideration of Environment and Social Aspect in Industrial Development

The presenter indicated that environmental and social factors cannot be ignored as we think industrialization and which is part of the Millennium Development Goals. To achieve these, the following activities need to be put into consideration

2.4. Action Plan of Kenyan Industrial Development

To achieve this the presenter said the following issues have to be developed;

1. Future directions and development Framework
2. Actions plan of Industrial Development

2.4.1. Future Directions and Development Framework

Four objectives were presented in the framework shown below:

2.4.2. Action Plans of Industrial Development

Actions plans to be undertaken based on the four objectives are as shown in the diagram below

2.5. Development Plan of Target Sub Sector

The presenter highlighted on the selection of target sub-sectors and development plan of the target sub-sectors.

2.5.1. Selection of Target Sub-sectors

The purpose and significance of this process was to identify the issues unique to the sub sectors and necessary measures to be undertaken and to select target sub-sectors and identify their issues and to prepare development plans.

The process included competitiveness and strategic evaluation. From the competitiveness evaluation, which included statistical analysis, qualitative analysis and growth analysis five sub-sectors were arrived at. Strategic Evaluation was done to the five sub-sectors with consideration of Linkages with growing economic sectors and policy priorities this led to the reduction of the five sub-sectors to three sub-sectors.

2.5.2. Development Plan of Target Sub sectors

The development plan suggested for the 3 selected sub-sectors is as shown in the diagram.

The presenter indicated that they expect to complete the Master Plan by end of this year (2007) and welcomed any contributions and feedback that can be incorporated in the final MAPSKID.

3.0. DIRECTIONS TOWARDS INDUSTRIAL TRANSFORMATION

Mr. Lewell Githiri Njehia, the Chief Industrial development Officer MOTI, made this presentation. He based his presentation the current situation of the Kenyan manufacturing sector in Kenya, existing advantages and the way forward.

Current situation

The current emphasis is on poverty alleviation and job creation yet from statistics it shows that the manufacturing sector has had minimal contribution towards the GDP. According to statistics given in 2006 it shows that the contribution was 10%. It has also had minimal contribution in job creation from manufacturing sector standing at 3% and informal manufacturing sector at 13% as per statistics in 2002.

Issues faced by the manufacturing sector

Issues facing this sector include:

- ☞ Small market size
- ☞ Preference to imported products
- ☞ Invasion by counterfeits
- ☞ High cost of production
- ☞ Poor infrastructure
- ☞ Weak horizontal and vertical linkages
- ☞ Low value-added activities by the manufactures

Even with the above issues facing the manufacturing sector it was evident that there are some existing advantages such as:

- ☞ Large capable work-force in the region – Have highly educated people
- ☞ Strategic location as a gateway to East and Central Africa – the Mombasa port
- ☞ Variation in sub-sectoral activities

The presenter asked if the opening of the global markets was a threat or created opportunities for Kenya. He articulated that there was need to emphasize competitiveness creation.

The presenter gave the diagram below to illustrate the Kenyan Industrial Position among COMESA, EAC and South Africa, from the illustration it indicated that Kenya comes 3rd in manufacturing after South Africa and Egypt. However it was mentioned Sudan is ahead due to the advantage of mining.

The presenter also indicated that Kenya had the ability to head towards being an industrial pillar in central and east Africa as per the diagram shown.

To lead the country to being an industrial pillar in Central and East Africa there was a need to create Industrial Transformation Triggers through created of linkages. Some of the proposed linkages are as follows:

- i). Spatial Linkages: Creating an industrial corridor
 - ii). Overseas Linkages: Strengthening linkages with Foreign Companies.
 - iii). Sectoral linkages: Strengthening industrial linkages
-

iv). Economic Linkage: Integrating informal economy into formal economy

3.1. Creating an Industrial Corridor

The suggestion is to create an industrial corridor along the main Kenyan transit route by

- ☞ Strengthening infrastructure along the corridors with phased approaches, harmonize with the road infrastructure.
- ☞ Need of proper national land use mapping, harmonize with other economic reform sectors.
- ☞ Strengthening services for local industrial development, this should include the social amenities like schools, hospitals etc.
- ☞ Creating investment opportunities through provision of incentives to attract investors.

The diagram below illustrates the possible route of the industrial corridor:

3.2. Strengthening Linkages with Foreign Companies

The proposed ways to strengthen linkages with foreign companies is by:

- ☞ Utilizing FDI, which is the key information source for technological development and market expansion.
- ☞ Supporting localization of multinational companies through providing good human resource and suppliers and with strong infrastructure (Make use of the available resources in the country).
- ☞ Need to support market development scenario of seeing Kenya as a market and production hub in the East and Central Africa.

The presenter highlighted that as a means of supporting localization of multinational companies, a company like Safaricom has created many SMEs.

3.3. Strengthening Industrial Linkages

The proposal is to consider cross-sectoral impacts on the manufacturing sector by creating policies that support the manufacturing sector, which will also have positive impact on the other sectors.

Sought for industrial development strategies that will strengthen linkages with growing economic sectors, MOTI has the prerogative of facilitating the growth of these sectors through implementation of supportive strategies.

The diagram below illustrates the cross-sectional impacts on the manufacturing sector.

3.4. Integrating the Informal Sector

The proposal is to increase global competitions, which calls for competitiveness creation of the manufactures. The other thing is to put more efforts by the government to promote formalization of informal sector. The diagram below shows the status of labour force in Kenya and the expectation by 2030.

The diagram indicates that the current situation is 58 % informal sector, 20 % the formal sector and

23 % unemployment. However with industrialization this expected to change and by 2030 the informal sector would have graduated to formal sector increasing this sector, labour population will have increased and unemployment will be at minimal levels.

3.5. Implementation Framework

3.5.1. Four Objectives in the Implementation Framework

The presenter gave an illustration of the diagram shown below highlighting the four main objectives and the activities that need to be undertaken under each objective in order to achieve the set objectives.

3.5.2. Linkage Creations and Implementation Framework

The diagram below was presented to show the relationship between the four objectives and the triggers towards industrial transformation.

4.0. TARGET SUB SECTORS

This session was presented by Ms. Ayako Ishiwata the Deputy Team Leader, JICA Study Team and Mr. Victor Nyamwange Mageto the Chief Industrial Development Officer, MOTI.

4.1. Selection of Target Sub-Sectors

Ms. Ayako started her presentation by highlighting the intention of selecting the target sub-sectors, which were;

- ☞ Identifying unique issues involving sub-sectors
- ☞ Concretise industrial development scenarios

She stressed that there are no “easy-winners” and that there was no discrimination of the other sub-sectors, the essence was that improvement in fundamental conditions are a prerequisite for all the sub-sectors to leap.

The three target sub-sectors were selected on the criteria of;

1. Growth potential, and
2. Supports development scenarios of
 - Industrialization that accompanies technological innovation,
 - Industrialization that strengthens industrial linkages
 - Industrialization that contributes to local development

The selection process involved statistical and qualitative analysis as shown in the diagram.

100 manufacturing firms were visited, forums and workshops held and consultations with relevant organizations were undertaken to arrive at the three target sub-sectors.

The selection was based on the internal and external trends in Kenya and Global, the diagram below shows the results.

From the results as shown above three sub-sectors were selected, these are:

1. Agro-processing
2. Agro-machinery
3. Electric, Electronics/ICT

The presenter highlighted the inter-relationship between Agro product and Agro process.

4.2 Global Competitiveness

This part of the session was presented by Victor Nyamwange, He started by giving recommendations on how to keep and create global competitiveness of Kenya's agro-processing sub sector as shown in the diagram below

Table 1: How to Keep & Create Global Competitiveness of Kenya's Agro-Processing Sub Sector

How to keep & create competitiveness	Domestic Market	International Regional Market	International Development Market (DM)
Global M/R information	Information on Imports	Information on trade	Information on Exports
Commodity Strategy	Commodity diversification	Suite the client's purchasing power	Pursue consumer's preference
Raw Material Procurement	Secure local procurement	Broaden foreign suppliers	Raise domestic self supply
Production cost saving	Increase local contents	Resort scale of economy	Resort scale of economy
Value addition	Free from spoilt goods	Better packaging	Label production process (Benchmark with international standards)
Commodity presentation	Free of charge samples (increase)	PR through media & IT	Trade fair & IT Network (Selling online)
Economic significance	Minimize perishable loss	Diversify consumer's food	Keep Kenya a Dm's client
Public promotion strategy	Procure domestically process-able materials	Supply Higher Quality goods than those by competitors	Appeal Kenya's cleanness on raw and processed foods.

The presenter highlighted on the role of the sub-sector and bio-fuel potential. As per the analysis given it showed that Bio-fuel had greater value additions rate as shown in the diagram.

The presenter explained the diagram below showing how it would lead to the contribution of Agro-machinery to the growth of GDP. A comparative study of other countries was also highlighted.

To allow competition and collaboration among agro-machinery manufactures the following was suggested:

1. Establish agricultural mechanization programme

2. Promote grouping of manufacturers for improving competition and collaboration.
3. secure sustainable supply of raw materials with reasonable price
4. reduce unbalance between demand and supply
5. upgrade technology of Jua Kali
6. Increase local content with appropriate technology

Electric, Electronics

Specific measures were given as follows:

Market	Inclusion of local manufactures in ICT projects
HRD (TIVET)	Curriculum development (from analogue to digital). Strengthening in designing Strengthening in production management (QCT). Qualification system – that which can accommodate people from all levels.
Networking	Teardown forums
Investment Promotion	From EPZ to SEZ Special Economic Zone in Athi River

Recommendations for market opportunities were as follows:

- ☞ Need to utilize growing demand created from the ICT sub-sector.
- ☞ Should consider existence of the local manufacturers in ICT projects
 - There are local producers (e.g. PCs, generators, switches, and cables).
 - There are potential suppliers to electronic components (especially plastics, metal rubber).
 - Productivity-oriented production is necessary to create competitiveness of the sub sector.
 - Minimize cost of production to create competitive edge in the sector.

Recommendations for Human Resource Development (TIVET) were:

- ☞ Curriculum development (integrated local and global needs)
- ☞ Strengthening in designing
- ☞ Strengthening in production management
- ☞ Establishment of lifetime qualification system.

An illustration from Bangalore, India was highlighted showing how students are taught how to draw designs manually using free hand before they progress to electronic.

Recommendations for networking are to be done through teardown forums and the following is to be undertaken:

	Activities	Purposes
Stage 1	KIRDI and MOTI take a lead in inviting local potential suppliers to the teardown forum	Identifying capabilities of the local manufacturers Creating horizontal collaboration For the government to learn capabilities of the local suppliers and to promote investment to Kenya by assemblers
Stage 2	Teardown forms are held with full participation of the assemblers	For the assemblers to identify the local suppliers Creating vertical and horizontal linkages

Recommendations given for investment promotion were:

- ☞ Move from Export Processing Zones to Special Economic Zones
- ☞ Develop and integrated economic zone in Athi river by;
 - Improving the infrastructure
 - Improving on social living conditions (Hosing, schools, hospitals)
 - Amenity and tourism

5.0. COMMENTS AND RECOMMENDATIONS

Comments and recommendations presented after the morning presentations were as follows:

Ministry of Science and Technology (DIT)

- ☞ In reference to technology transfer and looking at FTI, we could adapt the establishing of joint ventures to enhance the local and international ventures.
- ☞ Adopt manufacturing by licensing to spare the local manufacturers from marketing and research.
- ☞ Government to lead the way on utilization on local manufactured goods.

Institute of Development Studies

- ☞ Strengthening Industrial Linkages as a means of supporting manufactures seems a good idea but there is a need to be realistic. Each sector will be looking out to itself first. There is a need to closely work together with each sector to come up with acceptable standards by manufacturers.

Response: The linkage proposal does not ignore the local investment, they emphasize the linkages with the foreign investments. Recommendation is to do a study on creating an industrial corridor, which will result to more concrete strategy and come up with a step-to-step approach.

- ☞ Formalizing the informal sector has been a challenge and the informal sector continues to expand. How is it realistic for formalize this sector. It would be prudent to look at what makes the informal sector continue to expand. Lack of institutional infrastructure to protect the informal sector is one of the problems. These issues need to be addressed in the strategies to help in driving the informal sector into formal sector.

Response: In reference of formalization of the informal sector action plans will be established and

come up with a framework that will realize this.

NESC

- ☞ Need to synchronize the figures appropriately e.g. GDP growth to be precise and consistent.
- ☞ The horizon talks of 2020 & 2030, however there is a need to create an earlier milestone e.g. 2012 to measure the achievement of MAPSKID and it would even be better to achieve the industrialization earlier.
- ☞ The ministry of finance – investment sector is doing the PPP and there is need to link up to know what is being done.
- ☞ What are the criteria being used to base the industries framework are we along the vision 2030.
- ☞ What strategies are being put in place to ensure the increase of the formal sector? How can the informal sector be linked with the formal?

Response: The government has the prerogative to create supportive system and investment incentives to facilitate the growth of the formal sector. The vision 2030 highlights on this issue.

MOTI has the responsibility to promote the manufacturing sector to hasten the formal sector growth.

- ☞ What is being done to avoid discrimination of the other sub-sectors? What is the value being accrued from the new sectors.

Response: Discrimination of Sub-sectors change over time, GOK delays in making changes result in slowing down the process

- ☞ Clothing Sector – how does it link with the thrust of value addition in the cotton industry? How does it link with the revival of Rivertext?

Response: Clothing was not selected because it does not have potential but the ministry of agriculture has in-depth plans on this sector.

6.0. KENYA INDUSTRIAL DEVELOPMENT PLATFORM

This session was presented by Mr. Tetsuya Fukunaga a Senior Consultant, JICA Study Team. His presentation was divided into two parts:

- 1) Pursuance of User's satisfaction for entrepreneurs
- 2) Absolute "Comparative Advantage" of Kenya

6.1. Pursuance of User's satisfaction for entrepreneurs

The presenter reviewed the Kenya Industrial Development Platform indicating that the MOTI will be in-charge of the secretariat.

The following points were given as the justification of government's support towards private entities:

- ☞ Generation of new industries;

- ☞ Expansion of opportunities for employment;
- ☞ Promotion for competition in market and
- ☞ Vitalization of regional economy³

The above justifications would lead to sustainable economic and industrial development.

Precondition: Main users for governmental supporting organizations must be “private entities” and especially “entrepreneurs.”

Questions posed to governmental supporting organizations are;

- ☞ Appropriately organized without lack of activities;
- ☞ Efficiently and effectively managed;
- ☞ Sufficiently budgeted; and
- ☞ Adequately networked;

For “private entities?”

Observations and happenings in Kenya arrived at were:

- ☞ Some activities must be established for requirements of market;
- ☞ Some activities are overlapped among organizations; and
- ☞ Budgets for activities are restricted because of budgetary cutback as well as increase of operating expenses;

As highest common factors

Potential users (entrepreneurs) face complexity and lose their way: where should I go and ask?

6.1.1. Types of Entrepreneurs

The presenter highlighted on two types of entrepreneurs; the micro, small and medium sized and high-tech oriented. The different aspects of the two entrepreneurs are shown below:

	Micro, Small and Medium- sized	High-tech Oriented
Business content	The business is developed in response to the needs of existing businesses for risk avoidance	Risk is embraced in a field having a high degree of originality without depending on existing businesses.
Executives	They develop a business that can provide a stable profit base within the scope of skills they have acquired for long period.	They are highly knowledgeable in specialized fields and embark on the business with a strong growth orientation
Management	An executive is a decision-maker in charge of many different	Originality is sought in the management as well as experts(who

³ By Japan’s small and medium enterprise basic law (Revised on 1999) as one example

	management field.	may be external experts) participate in management.
Employees	Most employees are experienced technicians and mobility is low.	Most employees are outstandingly young and mobility is high.
Technical level	Technological improvements are built up within the scope of existing technology.	New products and services are introduced by broadening the scope by promoting R & D.
Products and services	Products and services are aimed at existing markets and customers based on the fulfillment of orders without going beyond established scope of capability.	Areas of growth and creativity are consciously selected and new markets and customers are aggressively targeted
Business performance	The main aim is to maintain the existing state of affairs under low profitability. Performance is susceptible to economic changes.	Emphasis is placed on obtaining high profitability and on forward looking investment
Procurement of capital	Capital is mostly financed by loans from financial institutions	Venture capital and other high risk investment funds are used

A diagram was presented to show sample organizations from Japan that have overlapping roles and restricted budgets.

An illustration of an enterprise centre was presented. After completion of “Role-sharing” among supporting organizations, entrepreneurs (both micro, small and medium sized and high-tech oriented) in Kanagawa Prefecture contact directly to Kanagawa small and medium sized enterprise centre as coordinating organization.

Absolute Comparative Advantage of Kenya

The diagram below was presented to show the economic development and the development using two different theories

However, now Kenya has already had absolute comparative advantage of economic development from even an international point of view. To take advantage of the comparative advantage internationally the following points should be considered:

- ☞ It is not easy to establish it in the short time
- ☞ Huge investments are required
- ☞ Geographical location is precondition
- ☞ Private involvement is a “must”

The advantage is already being used in some parts but not fully.

The presenter highlighted on the importance of the Jomo Kenyatta International Airport and Kenya Airways. He stated that the Airport provides linkages of air and sea and its national carrier Kenya Airways operates flights in various destinations in Africa and around the world providing possibility of Kenyan products reach the various destinations.

It was indicated that Kenya and South Africa have alot EPA. It was said that Air France has no

passenger flight from Kenya, yet they operate a Cargo flight, Emirates operates to flights daily from Kenya, if you are travelling to Rwanda you have to connect through Nairobi and supermarkets in European countries are filled with flowers from Kenya. The essence of this was to show that the JKIA airport stands at an advantage position for Kenya due to its linkages and busy activities.

The presenter indicated that Kenya has “two” faces as:

- ☞ One developing country
- ☞ Leader of East Africa and Africa as a whole

With this advantages and the additional advantage of JKIA through Kenya Airways network to African countries Kenya can become a distributor of HIV/AIDS and malaria medicines. Kenya can also become a strategic attraction of pharmaceutical plants around JKIA.

7.0. LESSONS FOR THE KENYAN INDUSTRY

The presentation was made by Ms. Nancy Wacuka Muya an Assistant Director of Industries, MOTI. The presentation was based on lessons learnt with reference to the Japanese Industry in relation to a seventeen-day visit to Japan.

7.1. Objective and Purpose of the Study Tour

The objective was to enable the counterpart team to benchmark various Japanese institutions, enterprises and other organizations with Kenyan case in Industrial development.

The purpose of study tour was to enable the counter part team understand the following;

- ☞ Collaboration between government, private enterprises and representative organizations
- ☞ Policies put in place for industrial development and implementation agencies
- ☞ Collaboration between Trade and Industry support institutions and universities
- ☞ Human resource development in local industries
- ☞ Strategies for formation of local industrial clusters
- ☞ The role and activities of centers supporting entrepreneurs
- ☞ Systems of data collection, analysis and dissemination
- ☞ Accessibility and accuracy of industrial and trade data
- ☞ Role played by the packaging institute
- ☞ Regional development through processing of agricultural products
- ☞ Use of e-commerce in marketing of rural based industries
- ☞ Public, Private enterprises and Academia partnerships (PPA)
- ☞ Skills upgrading programmes by institutions for enterprises
- ☞ Utilization of research and development in commercial enterprises

- ☞ Development of high tech products for niche market
- ☞ Assistance given to Small and Medium Enterprises by government institutions at various stages of their development
- ☞ Collaboration between universities and technical colleges with industry in training, research and product development.

7.2. Institutions Visited and Lessons Learned

Government Institutions Visited

- ☞ METI Offices
- ☞ Japan Export Trade Organization (JETRO)
- ☞ Kochi Prefecture Industrial Promotion Centre (KP-IPC)
- ☞ Miyagi Prefecture Industrial Promotion Organization
- ☞ Tohoku Bureau of Economy Trade and Industrial cluster office
- ☞ Hanamaki Corporation Support Centre

Lessons Learned

- ☞ Data and information is vital for trade, industry and investment i.e. Publishing Industrial Report & Opening of industrial information centre
- ☞ Strengthen collection and disclosure of industrial statistics
- ☞ Provision of incentives to attracting FDI e.g. provision of one stop center offering facilities such as business support services, office space and other facilities for foreign investor.(Keninvest)
- ☞ Need for Kenya to maximize the support by JETRO programs on promotion of SMEs in developing countries through publicity, trade fairs, exhibition, and training. (EPC)
- ☞ Need for Kenya to utilize JICA, JETRO and other institutions for investment promotion
- ☞ Need for MOTI to strengthen its role as trade and industry facilitator
- ☞ Enhance the linkage between MOTI and other collaborating institutions

Academic Institutions Visited

- ☞ Kochi University of Technology
- ☞ Kochi National College of Technology (Planning Office, Regional Partnership Centre)
- ☞ AIST Tohoku Collaboration Centre (National Institute of Advanced Industrial Science and Technology)
- ☞ Tohoku Bureau of Economy, Trade and Industrial Cluster Office
- ☞ Miyagi Prefecture Industrial Promotion Organization (Industrial Promotion Department, SME's Support Office)

Lessons Learned

- ☞ Need to use performance contract in increasing productivity of research institutions. (Promoting technological transfer)
- ☞ Need for MOTI to set aside funds for research and development to be used as grant for product development (Promoting technological transfer)

Private Institutions Visited

- ☞ Japan Packaging Institute
- ☞ Japan Federation of Economic Organization
- ☞ Umaji Village Agricultural Cooperative

Lessons Learned

- ☞ Need for MOTI to;
- ☞ Support the equivalent of Japan Packaging Institute in Kenya (*Strengthening capacity of packaging*)
- ☞ Promote packaging education and technology in Kenya (Strengthening capacity of packaging)
- ☞ Promote liaison between government agencies, industry, academia and consumer organizations in matters of quality assurance systems, safety and ISO certification in packaging (new)
- ☞ Spearhead the drafting of packaging legislation and waste management regulations. (Strengthening capacity of packaging)
- ☞ Need to identify products at village level for value addition and matching targeted market. (One village one product project)
- ☞ MOTI to promote product development and diversification using indigenous raw materials.
- ☞ Create cross sector linkages because of rural industrial development, tourism and environment management (The industrial development strategy: to be revised.)
- ☞ Cooperatives, Associations, industrial clusters and business groupings are considered as instrumental for economic growth (Involvement of inter-ministerial and private stakeholders).

Private Enterprises Visited

- ☞ Kenkama Co. Limited
- ☞ Nakano Machinery Works Ltd
- ☞ Sakamoto Machinery Works Ltd
- ☞ Eiko Industry Co. Limited
- ☞ Suzuki vegetable and fruit Company
- ☞ Hayasaka Precision Co. Limited

- ☞ Adteck Co. Limited
- ☞ Kurokawa Co.Limited

Lessons Learnt

- ☞ Government encourages continuous employee skills development in SMEs especially on ICT for competitiveness
- ☞ Government provides adequate financial resources for private sector development (needs to be specified about the purpose and tool of the financial resources.)
- ☞ Regional authorities provide financial resources (Including incubation facilities and financial resources.)
- ☞ Infrastructure in terms of roads, railways and electricity are key to industrial development and are well developed
- ☞ SMEs are facilitated with among others, Leasing (new), Incubation and market research
- ☞ Linkages with communities, universities and enterprises should be encouraged
- ☞ Environmental conservation, re-afforestation and cleaner production methods are emphasized (F4.1 Environmental protection and conservation).

8.0. ACTION PLANS FOR INDUSTRIAL TRANSFORMATION

This presentation was made by Mr. John K. Munguti an Assistant Director of Industries, MOTI.

8.1. MAPSKID Objective and Activities to be Undertaken

The four objectives identified for the MAPSKID are:

- ☞ Improving efficiency of services by MOTI
- ☞ Improving conducive business environment
- ☞ Facilitating internal innovation of the Kenyan industry
- ☞ Sustainable development with environment and social consideration

8.1.1. Improving Efficiency of Services by MOTI

- ☞ It is important to build institutional framework to enable close communication with manufacturers and concerned ministries
- ☞ Establishing and strengthening sub-sectoral and district committees

Aim at:

- ☞ Action-oriented meetings
- ☞ Concentrate on common interests of the participants from the industry
- ☞ Identify sub-sector vision, draw work plans, etc

☞ Ensure efficiency

This will also require consultation horizontally with other ministries, privates sectors and at district levels.

8.1.2. Improving Conducive Business Environment

☞ Improving administrative and regulatory framework

- Promoting graduation of the informal sector
- (Easing administrative barriers and undertaking campaigning for registration, etc.)
- Establishing legal framework to promote B2B transaction by MSMEs (ex. Payment conditions, etc.)
- Actions against counterfeit goods. A bill has been prepared and yet to be presented to parliament for debate. The same is also supported under PSDS goal 1.

☞ Improving infrastructure

- Establishing industrial infrastructure committee
- Rehabilitating access roads to the industrial areas (action plan to address the problem of infrastructure, already working on it and the key players are MOTI and Ministry of Local Government).

☞ Improving availability of industrial information

- Strengthening collection and disclosure of industrial statistics
- Promoting easy access to industrial information

It was evident that current data is not very reliable and needed to be enhanced. The World Bank is supporting a start-up of data bank with the Kenya Bureau of Statistics and this could be useful to MOTI. There is need for reliable data to be used for planning.

8.1.3. Facilitating Internal Innovation of the Kenyan Industry

Establish the Kenyan Industrial Development Platform (KIDEP) to act as a one stop shop (OSS) a platform where SMEs can access information easily and also to link up other one stop shops. The diagram below illustrates the OSS.

a) Technological Development

- ☞ Strengthening capacity of the Kenya National Accreditation Service
- ☞ Introduction of tear-down forums (Reverse Engineering)
- ☞ Providing the loan for commercialisation of R&D outcomes

b) Management and Market Development

- ☞ Establishing legal framework for B2C: e-Commerce

☞ Establishing B2G e-Commerce: (e-procurement by the Government) – review act to allow government to purchase through e-Commerce

☞ Strengthening capacity of packaging (particularly for export)

c) Investment Promotion

☞ Transforming EPZ to SEZ – covered under goal 4 of PSDS.

☞ Local Investment Promotion – GOK looking at the issue of incentives

☞ Promoting venture capital activities – looking at alternative ways of financing businesses by raising capital from stock market through capital market authority and ministry of finance

d) Special Programs for local production

☞ Bio-Diesel Production Pilot Project – this was in reference to the Jatropha Project

☞ Bio-Ethanol Production in reference to sugar mills

e) Human Resource Development (TIVET)

☞ Upgrading training in the National Polytechnics

- P-P-P promotion
- Strengthening in production management and designing techniques

☞ Establishing the National Skills Evaluation System

- Motivating life-long upgradation

f) Networking

☞ One Village One Product

☞ Creation of Integrated Economic Zone in Athi River

8.1.4. Sustainable Development with Environment and Social Consideration

☞ Synergizing environment, safety, and health auditing system

☞ Promotion of the self audit

☞ Disseminating through the best practices

9.0. COMMENTS AND RECOMMENDATIONS

KAM

☞ Need to harmonize MAPSKID with PSDS

☞ A need for inter-ministerial coordination and MOTI ought to have muscles, goodwill is not enough. How can MOTI be more effective?

☞ The districts are too many and involving the district committees in the action plan may not be effective why not focus on the provincial committees.

-
- ☞ Follow up on the anti counterfeit bill to have it enacted and ensure that there is capacity to actualise it.
 - ☞ Are there companies willing to fund the rehabilitation process of PPP? The Teardown process is good but who do we make it commercial viable.
 - ☞ There has been mention of Local environment investment yet no local authorities have been mentioned, will they be involved.
 - ☞ The trend in the country now is that every technical institution is being converted into a university, how will we retain our technical institutions.
 - ☞ All SMEs need to comply with the environmental protection how will this be ensured?
 - ☞ Agro Machinery is one of the Sub-sector with potential yet the tax regime is not favourable. Tax is zero rated thus causing influx of machinery from importation. How can the imports be balanced.
 - ☞ Regulatory environment – there is growing cost of tax compliance which is a concern to the industry.

KEPSA

- ☞ Information can be a great resource to private sector.
- ☞ In reference to the improvement of the infrastructure, do we have the capability to improve this infrastructure as quickly as possible?
- ☞ Institutions to develop or scale up, what ways are in place to bring up equitable development. It is difficult to access financial support.
- ☞ Interface directly to the organization.
- ☞ Micro enterprise with regional approach – how can they be assisted, how can they be inter-phased to a globalised market for greater prosperity and equitable development.

UNDP

- ☞ Focus on the three sub-sectors and emphasis on linkages is commendable.
- ☞ Concern is the establishment of many institutions. How will they be managed? Suggestion is to work with the current institutions and strengthen them.
- ☞ KIE and MOTI with support from UNDP and in the process of creating District business solution centres, this can be strengthened instead of creating new ones.
- ☞ Human resource development is important, take into account TIVET. How can the vocational training policy are strengthened before it is passed as a bill.
- ☞ Curriculum being developed to be considered instead of developing new curriculum.

PSDS Coordinator

- ☞ Implementation is more aligned to the mission 2020 and vision 2030.
-

- ☞ Level of ambition is not aligned to the countries visions.
- ☞ Create clear alignments to create synergy.
- ☞ KIDEP is very powerful, the challenge is the way it is structured it cuts across, support framework must also support across.
- ☞ Strategies for linkages of high level and lower level will be key. Adopt the district structures mechanism that has been envisaged by PSDS.
- ☞ Take a wholistic look at the grassroot level.

IPAR

- ☞ With the development of the document it is evident that manufacturing sector will grow first, if this document is implemented then we can be industrialized before 2020.
- ☞ Informal sector cannot be left behind, it has not being doing will, however it can be used as a bed of industrialization.

Ministry

- ☞ Policies to allow vertical growth of SMES (manufacturing sectors).
- ☞ Help them to produce products of good quality (technical capacity).
- ☞ Need to enhance the ability of the entrepreneurs to learn from imported goods (technology transfer).
- ☞ Need to enhance learning from enterprises that are doing well and give assistance on management, financial, quality control and marketing,
- ☞ Create proper channels of marketing there goods.
- ☞ Need for MOTI to identify enterprises that are promising from every sector, give them incentives, and have them as lead enterprises, whereby other upcoming enterprises can learn.

Issue of collaboration, need for MOTI to collaborate with Private Sector to be able to know the challenges and how the y can work together to solve them.

10.0. PROMOTING USE OF ICT BY THE MANUFACTURING SECTOR

This session was presented by Eng. Chris Oanda the Managing Director of E-Sokoni and Chairman of Kenya Institute of Supplies Management. The presentation focus was on:

- ☞ the needs of promoting use of ICT solutions by the manufacturing sector to improve competitiveness in the sector
- ☞ MOTI needs to lead the transformation by creating and supporting enabling policies for this to happen

The abc of ICT Strategy

Define ICT: Simply put, its information, communication, technology

However, It's rarely the technology that's complicated. The equipment needed to produce good ICT for most organisations is usually straightforward; the software is a little more complicated; however, the people and change issues are the most problematic. Also needed are GOK supportive Policies.

The diagram above illustrates the flow of manufacturing supply chain. In further clarification the presenter highlighted that correlation between the established enterprises and upcoming once is important and best practices can be learnt from them. An example was given of BIDCO which has used ICT effectively.

ICT programs are varied and no one program can cater for itself fully but there is a need to integrate a number of them for effective performance. Many organizations invest on ICT products to run the HR, Finance etc.

There is no ideal solution to automation; however change management in adoption of ICT is quite critical.

Manufacturing Supply Chain

- ☞ Production Order
- ☞ Procurement Order
- ☞ Cost Management
- ☞ Equipment Management
- ☞ Inventory Management
- ☞ Labour Management

The presenter indicated that there is need for an integrated approach as a means of running effectively. Manufacturing supply chain cost base is too high in Kenya however it has its advantages like speeding up automation and increases transparency.

E-commerce for Manufacturing

- ☞ B2C; B2B
 - ☞ Reduces distance to market
 - ☞ Ready WWW Market information
 - ☞ Levels playing field
 - ☞ Reduces barriers to market entry
 - ☞ Ready access to customers
 - ☞ Customisation and focus is possible
-

☞ ICT Investment reduction

There has been great improvements in the country in terms of B2C and B2B yet policies are required to support the ICT process and MOTI being an enabler can take up the challenge.

The abc of ICT

There are two reasons to use ICT

☞ Doing things better

☞ Doing better things

- This should lead to reduced costs for Manufacturing supply chains in Kenya
- MOTI should support this transformation

Technology in itself is meaningless. ICT developments should bring tangible benefits to the user, the organisation or clients ICT is only as good as its application to people and organisations.

11.0. COMMERCIALIZATION OF R & D

This presentation was made by Mr. Milton Lore, the Managing Director of Bridgeworks Africa Ltd. He started his presentation by giving a quick outline of his presentation.

Presentation outline

☞ About Bridgeworks Africa

☞ Business model

☞ Time-line

☞ Sample ventures supported to date

☞ Can we join the dots?

☞ Worked examples elsewhere

About Bridgeworks Africa

☞ Life sciences technology transfer and venture capital investment group engaged in incubation and commercial exploitation of innovative products and services associated with agriculture, environment, healthcare and nutrition

☞ Founded in 2004 as Kenyan affiliate of Bridgeworks AG (Zurich, Switzerland)

☞ Technical and business development team with extensive operational experience in successfully supporting high potential entrepreneurial enterprises in East Africa, Europe and North America

Time-line

Activities that have been undertaken by the organization are highlighted below:

2004:

- ☞ Research commercialization agreement concluded with International Centre of Insect Physiology and Ecology (ICIPE)

2005 to date:

- ☞ establishment of operational office and team in Nairobi
- ☞ strategic implementation of legacy ICIPE ventures
- ☞ new opportunity screening, deal pipeline development and research institution relationship-building

Near future:

- ☞ incorporation of early-stage venture capital fund and business incubator / technology park to support promising bioscience enterprises

Can we join the dots?

- ☞ Kenya has progressively emerged as a clear regional and international hub for science, technology and innovation over the past 40 years
- ☞ Kenya has been assessed as having the second most innovative capacity in sub-Saharan Africa by the World Economic Forum's 2007 Global Competitive Index, with a particularly strong ranking (31 of the 128 economies sampled globally) in the quality of its scientific research institutions
- ☞ Kenya has initiated a vision strategy for transformation into a globally competitive and prosperous country by 2030 - fast tracking economic growth, reducing poverty, fostering international competitiveness and achieving the Millennium Development Goals
- ☞ Kenya's Finance Minister announced allocation of seed capital (US\$ 4 million equivalent) in 2007/2008 national budget towards establishing an endowment fund for innovation and research

Worked examples elsewhere

This are examples presented of what other countries where doing in regards to commercialization.

- ☞ United Kingdom: Higher Education Innovation Fund; Knowledge Transfer Partnerships
 - ☞ Qatar: Qatar Science and Technology Park Funds (Proof-of-Concept, New Enterprise, Technology Ventures)
 - ☞ New Zealand: New Zealand Venture Investment Fund
 - ☞ Chile: Fundación Chile
 - ☞ South Africa: Innovation Fund
 - ☞ Other approaches: university alumni endowments, corporate philanthropy, public-private
-

partnerships, R&D tax incentives

Questions and Answers

1. How much is invested in a venture?

Investment is made on the first phase and amounts between US\$.50,000 – 500,000 and it is made as an equity investment. The then stake as a revenue shared or provide early stage investment and make it marketable.

2. What is the exit strategy

This has not been experience yet however exit would either be through transition or buying out by new investors. Handling over to second investors through listing or buying management shares.

3. How to buy into the fund

This can be done through co-investments in individual investment and hold a limited share or offering to institutional investors in venture investment fund.

In finishing his presentations, he urged collaboration with small entrepreneurs to enable commercialisation. MOTI could work to establish collaboration incubators to make it easy to commercialise on research. KIE was initially an incubation company but has not been very successful and there is need for redefinition of the organization.

12.0. DIMENSIONS OF DECISIONS

This presentation was made by Professor T. C. I Ryan, PhD, Chairman, University Council, Professor, Strathmore University.

He started by saying that Kenya had a trade of making writing wonderful papers/policies and no action was taken and hoped that this would not be one of them since it was a wonderful thing.

The level of analysis made in reference to MAPSKID was commendable and have analysed the problems. He said policies is the action taken and here was need to move the MAPSKID toward a policy. To move this forward it needs someone who is truly committed to the course and thus it requires a champion to move this process forward.

The champion need to be someone who can influence decision making since this is a program that will involve many other ministries and sectors.

Lobbies are efficient in Kenya, they aim at maintaining, and not changing however, this can be used to bring about the desired change in industrialization.

Collaboration effort in PPP is important, currently there is an un-worked out interface between competition and corporation. How do we get the formal sector to outsource from the informal sector? There is need to identify the losers in the MAPSKID because there always has to be losers.

There is need to clarify the market place allocation and rule based access. Kenya government needs to negotiate better ways for Kenya exporters, this is one way government can support industries.

Decisions are of different nature and the government needs to decrease the cost of investment in Kenya especially the cost of labour and energy, which has been a negative effect.

ICT is energy oriented and poses a challenge in relation to Kenyan Supply of energy. Issues of structures in relation to government approval and information cost need to be reconsidered, lack of appropriate database can be very costly.

Budget and tax constraints are a hindrance and need to be friendlier to attract investment. Level playing fields are necessary to attract investors (FDI Investors). FDI needs clear information on what are the benefits.

13.0. COMMENTS AND RECOMMENDATIONS

EPZ

- ☞ Who should be the right Champion of this nature of a Project (MAPSKID)

Response: Champions are people who take up a course and keep the flag flying; it needs someone with a personal commitment and with a title above a director. A Minister, Assistant Minister or PS could make a good champion due to the ability to influence decision-making.

- ☞ Cost of doing business in Kenya and especially in relation to energy is very expensive, what can be done to reduce this cost, if the price is reduced who will meet the cost?

Response: This is a critical constraint the solution could be to buy from international bridges e.g. SA, Tanzania instead of insisting on being self-reliant. Alternative could be to look at the unexploited sources of power e.g. wind mills this could boost the level of power.

MOTI

- ☞ The issue on energy and infrastructure, how can we have the decisions implemented and how can MOTI influence the quickening on the issue of infrastructure.
- ☞ Need for collaboration between the different ministries, how are they contributing towards achieving the vision 2030.
- ☞ Action plans should address the right bodies to hasten implementation. There is need for proper co-ordination and partnership with the private sector

Department of Industry (MOTI)

- ☞ In relation to technology transfer, it would be appropriate to consider the national polytechnics and technical colleges as bases or training artisans for positive contribution towards SMEs.
- ☞ Regarding incubators (estates), this is something that needs to be considered to identify organizations that can act as incubators for others to learn.
- ☞ Develop a production centre whereby people who have machinery yet do not have adequate facilities where they can work. This would help the informal sector to move on.
- ☞ Human resource development has not tapped appropriately the human resource available, there is

lack of exposure and this should be a consideration in MAPSKID.

- ☞ Broaden MAPSKID to cover a wider are of public and private sector (expand geographical area) to cover the whole country. Consider institutions with branches countrywide.

EPZ

- ☞ Need to realize the full potential to contribute towards the GDP. Ministry to influence the related ministries once MAPSKID is out.
- ☞ Need for total change of mindset concerning private sector in relation to harassment from government, be given incentives, and reward system that will activate the appropriate growth.
- ☞ OSS need to define what it is, is it a place where you have all your problems solved, is it a franchise, look for the best model that suites Kenya.

Response: The action plan will give the details of the OSS

- ☞ In relation to bio-diesel, have they looked at what is most feasible

Response: A pilot project has already been started to assess the viability of Bio-diesel in Kenya.

KAM

- ☞ KAM has its base countrywide and has representative offices in all major towns.

Ministry of Technology and Science

- ☞ Re-think how people are trained in terms of starting business, skills required in business planning, management and financial management.
- ☞ Need for capacity building for SMEs.
- ☞ Adopt new strategies we need to move away from the norm and start with marketing. Move away from concentrating on policies but more emphasis on strategies.
- ☞ ICT is important and there is need to include the rural Kenya into being ICT compliant.

14.0. WORKSHOP EVALUATION

The evaluation is based on 33 participants who were present by the end of the workshop; however, the total representation to the workshop was 100 participants.

- 1) 23 participants were drawn from the Ministry, 6 from Public institutions for enterprise development/services, 2 from research institutions/academics and 2 from private sector. However there was representation from donor agencies/embassies.
- 2) 32 participants attended both the morning and the afternoon sessions.
- 3) 16 participants said that the overall impression of the seminar was very interesting, 13 said it was good and 2 said it was fair.
- 4) 18 participants said the recommendations from the Master Plan could at a good level effectively contribute to the industrial development, 9 said very effectively and 5 said fairly.

5) The constraints that the government needs to overcome were seen as follows:

- Financial Constraints - 9 participants
- Commitment of MOTI - 12 participants
- Inter-ministerial collaboration - 15 participants
- Political Will - 9 participants
- Others - 3 participants
 - Redefining the roles by various institutions
 - Provision of fundamental requirements for industry and improving business environment
 - Identifying champion
 - Bureaucracy and red tape

6) Comments and request presented were as follows:

- ☞ Narrow down the period in the realization and actualisation of the content of the MAPSKID in order to minimize the market distortion and uncertainties associated with longer period.
- ☞ Network with all the relevant agencies in order to create a sense of belonging to the Kenyan people.
- ☞ Action plan not realistic and does not consider the urgency with which we need change e.g. phase 1 actions which is preparatory takes 2007-2010 why? When should we implement and when do we start to reap the benefits of MAPSKID.
- ☞ Support small Jua kali and SME's through innovations to improve the quality of this products to ensure competition wit regional/international products, to promote excellence and growth. Also, assist in identifying markets for their products and help them to adopt ICT in re-engineering their processes.
- ☞ The initiatives will go along way in supporting our development agenda.
- ☞ Capacity building and staff level should be addressed effectively by the Ministry of Trade and Industry.
- ☞ Implementation should be practical.
- ☞ Request for soft copies of presentations made – L.N. Kimani of NESC, tel: 227411 ext 22115, email: lnkimani@hotmail.com
- ☞ It is a timely document to help in the development of industrialization in Kenya in the selected sectors.
- ☞ MAPSKID should come out very clearly on action plans that are practical, realistic and which funding is feasible.
- ☞ Need for adequate commitment on vehicles, modern equipment training and exposure of

-
- personnel and enough finance on recurrent expenses.
- ☞ Technology transfer through supermarkets, national polytechnics, colleges and special courses in universities.
 - ☞ Establishment of modern industrial shades for large and medium scale enterprises, production pints and Jua kali shades for micro enterprises.
 - ☞ Establish an all-inclusive institutional framework.
 - ☞ Report should include all aspect that need to be covered irrespective of available choice to be done can be separated.
 - ☞ Excellent and rigorous process. There is much to learn and much to apply.
 - ☞ MAPSKID should provide initiatives to studying and incorporating other sectors in focus.
 - ☞ Little focus has been included in the master plan on regional resources opportunities that Kenya can industrially exploit within EAC and COMESA.
 - ☞ Financial and political commitment is needed for the MAPSKID master plan, MOTE needs to provide (budget) for MAPSKID.
 - ☞ Plans to be based on framework of devolved governance system where resources focus is at local level.
 - ☞ There should be an improvement in the legal system especially the resettlement of contract dispute.
 - ☞ Massive investment in infrastructure especially in towns so that they can attract and accommodate large population. This strategy will release more land for agriculture activities.
 - ☞ Need to harmonize this plan with Industrial Policy, PSDS and vision 2030.
 - ☞ Several sessional papers have been put forth to address Industrial transportation, there is need to move speedy to implementation stage.
 - ☞ Minimize time consumed in boardroom meetings and move to funding key activities.
 - ☞ MAPSKID team has done an excellent job; it will be more useful if there will be results and focused implementation of the recommendations.
 - ☞ Involve more stakeholders from the private sector more especially the smaller organizations,
 - ☞ Issue of technology transfer should be looked into.
 - ☞ Implementation of activities identified in the 3 sub sectors hastened in the earliest possible time. A country cannot grow on imports of products that it can produce locally
 - ☞ Constraints will be a combination of financial, commitment and political will. The MAPSKID is a good, but will need considerable political and willingness of the government to implement it.
 - ☞ Embrace public private partnership between government, public agencies and private sector to
-

realize 2030 industrialization goal using science and technology and innovation policy to look at other initiative e.g. nuclear energy, solar and wind energy to reduce the cost of power and power the development engine.

- ☞ Review the earlier policy documents e.g. sessional paper No. 2 on Industrial transformation got detailed in its implementation.
- ☞ Suggest effective strategies of enhancing vertical growth and linkages especially on SMEs based on experiences of East Asia.
- ☞ Develop new effective SMEs strategies.

The workshop ended with a vote of thanks to all the presenters, moderators and participants by Mr. David Magwaro a Senior Assistant Director at MOTI

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