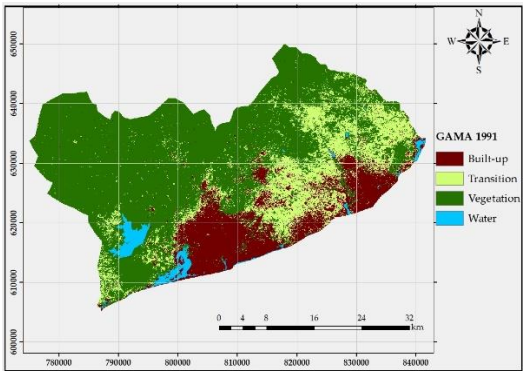
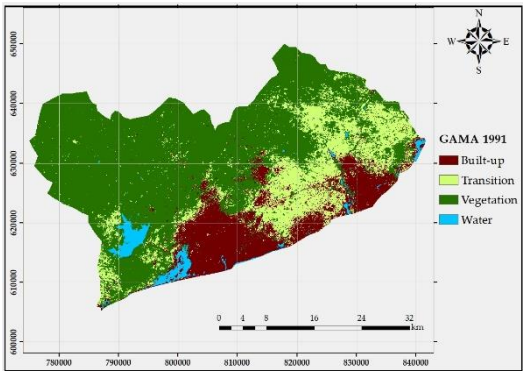
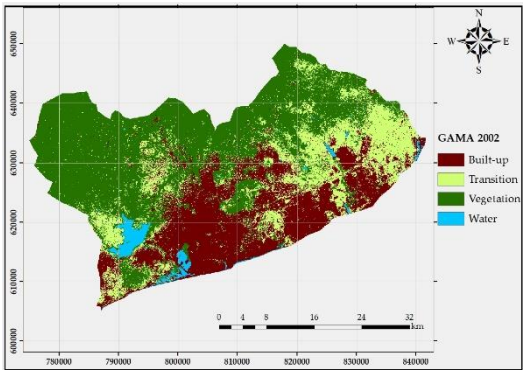


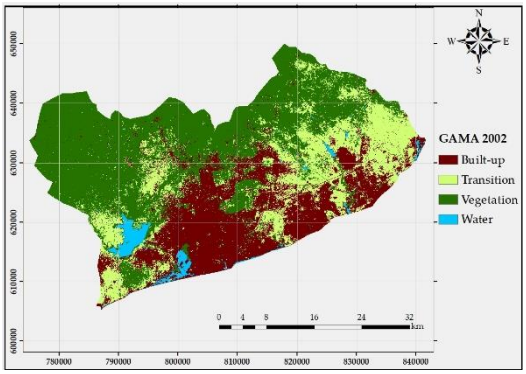
RF GAMA 1991



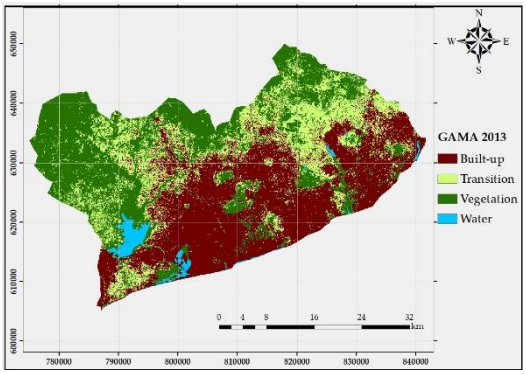
SVM GAMA 1991



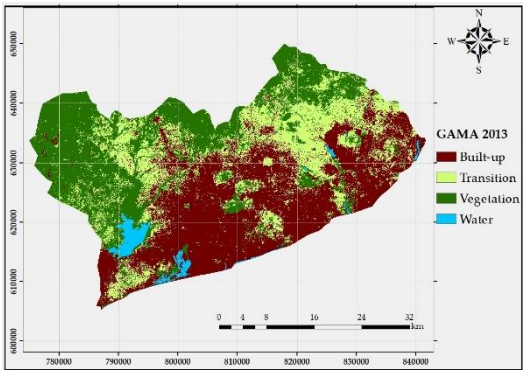
RF GAMA 2002



SVM GAMA 2002



RF GAMA 2013



SVM GAMA 2013

Table 3.3 Comparison between RF, SVM and SLIC, GAMA 1991

Landcover	Random Forest			Support Vector Machine			SLIC K-Means		
	FD	TE	PN	FD	TE	PN	FD	TE	PN
Built-up	1.59	5 228 100	8250	1.581	4 718 820	7675	1.547	1 412 760	268
Transition	1.636	10 067 910	15021	1.625	7 551 090	9416	1.583	2 163 030	573
Vegetation	1.814	7 643 910	7555	1.807	5 939 010	5429	1.821	1 061 640	420
Water	1.205	378 060	440	1.225	534 180	879	1.227	333 990	173

Table 3.4 Comparison between RF, SVM and SLIC, GAMA 2002

Landcover	Random Forest			Support Vector Machine			SLIC K-Means		
	FD	TE	PN	FD	TE	PN	FD	TE	PN
Built-up	1.683	7 864 860	10941	1.681	7 260 480	10410	1.567	2 040 870	502
Transition	1.679	11 576 190	20142	1.671	8 986 020	13647	1.625	1 441 770	466
Vegetation	1.777	7 840 920	7765	1.771	6 696 570	5967	1.802	3 085 410	790
Water	1.188	399 270	521	1.19	373 590	391	1.227	333 990	173

Table 3.5 Comparison between RF, SVM and SLIC, GAMA 2013

Landcover	Random Forest			Support Vector Machine			SLIC K-Means		
	FD	TE	PN	FD	TE	PN	FD	TE	PN
Built-up	1.743	9 258 480	9161	1.743	9 243 900	9783	1.654	4 062 270	1115
Transition	1.703	14 851 290	20963	1.704	13 379 520	17784	1.682	2 079 870	499
Vegetation	1.721	8 601 810	9325	1.708	6 841 920	7291	1.728	2 340 120	648
Water	1.194	276 780	264	1.197	295 260	237	1.227	333 990	173

Table 3.2 Kappa scores for RF and SVM, GAMA 1991, 2002, 2013 and 2022

	Kappa Score RF	Kappa Score SVM
1991	0.928	0.925
2002	0.906	0.913
2013	0.881	0.849
2022	0.933	0.929

$$Overall\ Accuracy = \frac{Total\ number\ of\ correctly\ predicted\ pixels}{Total\ number\ of\ reference\ pixels} \quad (1)$$

$$Recall = \frac{No.of\ correctly\ classified\ samples\ of\ a\ class}{Column\ Total} \quad (2)$$

$$Precision = \frac{No.\ of\ correctly\ classified\ samples\ of\ a\ class}{Row\ Total} \quad (3)$$

$$F1\ Score = 2 \times \frac{precision \times recall}{precision + recall} \quad (4)$$

$$Kappa\ Coefficient = \frac{(TS * TCS) - \sum(Column\ Total \times Row\ Total)}{TS^2 - \sum(Column\ Total \times Row\ Total)} \quad (5)$$

Where:
TS =Total Sample
TCS = Total Correct Sample