The current status of the determination of both —V_{cb}— and —V_{ub}— will be given. The B factories have measured CP asymmetries with good precision, providing a precise value of the angle beta of the unitarity triangle. Further progress in the experimental testing of the Standard Model description of weak interactions and CP violation in the quark sector requires precision measurements of the sides of the unitarity triangle. The large samples of B meson decays available at the B factories along with advances in the theoretical treatment of both inclusive and exclusive semileptonic B decays have been used to provide precise determinations of —V_{cb}— and improved precision on —V_{ub}—. The use of a variety of strategies for determining these CKM matrix elements provides important cross-checks on the theoretical uncertainties that in most cases dominate the overall uncertainty. Progress in this area will continue as B-factory data samples increase.